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EXPERIMENTAL AND CLINICAL STUDIES OF COLON STASIS *

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The subject of colonic toxemia may be studied under four headings: (*a*) colitis; (*b*) adhesions, membranes and kinks; (*c*) colon dilatations and visceroptosis, and (*d*) stasis. The solution of many vexed questions of alimentary toxemia may with good reason be sought in an understanding of the mutual relationship of these factors.

In examining the region of the terminal ileum, cecum and ascending colon of a large number of dogs, it is observed that this area is almost invariably the site of peri-intestinal inflammation with a notable tendency to the formation of membraniform adhesions. Such membraniform adhesions are very common in apparently healthy dogs. The vermiform appendix in the dog, as is well known, is very large, being virtually an elongation of the cecum. This abnormally large appendix is usually found to be tightly filled; likewise the ascending and transverse colons are more or less engorged at nearly all times in the healthy dog. Manifold membranous adhesions bind the appendix to the terminal ileum or to the ascending colon. In several specimens the appendix was sharply angulated at two or three levels by contracting membranes or bands. Often the terminal ileum was found to be enveloped in such membranous adhesions. On microscopic examination of the colon wall opposite these adhesions, complete evidence of chronic colitis was found in each case. The goblet-cells and the lumina of tubules were engorged with mucus. The intertubular spaces were infiltrated with round cells and the polyblasts of Maximow were seen in nearly every field. The small blood-vessels were congested. Colon stasis in the dog is almost constant. Thus it appears that the factors mentioned before, adhesions, membranes and kinks, colitis and stasis are to be observed in nearly every dog. What is the relation between the adhesions, the stasis and the colitis?

I have produced in rabbits a colon stasis by prolonged intermittent ligation of the anus, and such an artificially induced colon stasis resulted after a few weeks in the formation of plastic adhesions which were drawn out into membrane form by the normal movements of the large intestine. These membraniform adhesions appeared most frequently about the cecum and at the hepatic and splenic angles.

A great many writers, including Virchow, Gerster and Pilcher, have expressed the belief that plastic adhesions may form about the colon as the result of a toxemia having its origin within the lumen of the large intestine. In view of these things it does not seem illogical to say that membranous adhesions about the colon may result from stasis with associated chronic colitis.

Bassler[1] describes a bacterium which he believes is an important factor in the development of pericolonic adhesions and calls it the *Bacillus adhaesioformis*. He examined the adhesions in eleven cases and encountered this bacillus more often than any other. Runeberg and Heyde isolated eleven different bacteria in inflammatory conditions about the vermiform appendix, among them the *B. fusiformis, B. thetoides, B. butyricus, B. parapneumococcus, B. pseudotetanus* and the *Streptococcus anaerobicus*.

It should be noted that the *B. adhaesioformis* of Bassler was not found in the adhesion but in the intestinal lumen opposite the adhesion. Like the bacilli isolated in adhesion formation by Runeberg and Hyde it is an anaerobe. The presence of these anaerobes in the colonic lumen at the site of adhesion may be accounted for by recalling that it is at the site of adhesion that stasis is marked. These saphrophytes or dung-dwellers are present in the stagnant feces, the oxygen of which is gradually consumed by the *B. coli;* thus a medium favorable for the growth of the anaerobes named is established. It can hardly be regarded as proved that any of these bacteria bear a specific relation to adhesion formation. If these anaerobes, however, do bear a direct or indirect causative relation to adhesions and colitis, stasis by the arrest of feces will favor, through the agency of these bacteria, the development of colitis and pericolitis.

Adami[2] remarks that bacteria pass from the intestine to the peritoneal cavity with comparative ease, and when present locally in any number and of low virulence they tend to be destroyed by the inflammation which they set up so that the fully formed adhesions are sterile. Adami, therefore, supports the contention that stasis through the agency of bacteria may produce pericolonic membranes. On the other hand, membranes, bands or folds which in any way fetter or embarrass the movements of the large intestine will tend to cause stasis. Among these bands and folds are many which are of embryonal origin. Many result from traction on adhesions between appendices epiploicae and adjacent intestines (Douglas G. Reid).

It is true that pericolonic adhesions and membranes do not always produce stasis; and here it should be

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Bassler, Anthony: Med. Rec., N. Y., 1914, lxxxv, 427.
2. Adami, J. G.: Brit. Med. Jour., Jan. 24, 1914, p. 177.

noted that the clinical consequences of pericolonic membrane formation will vary according to the variety and extent of the pericolonic membrane which is present. The white fibrous embryonal fusion membrane passing from the mural serosa to the colon is almost sure to hamper the normal cecal movements, whereas, the gossamer vascular veil, a very common accompaniment of chronic appendicitis and probably the result of changes in the circulation (Hertzler), I have

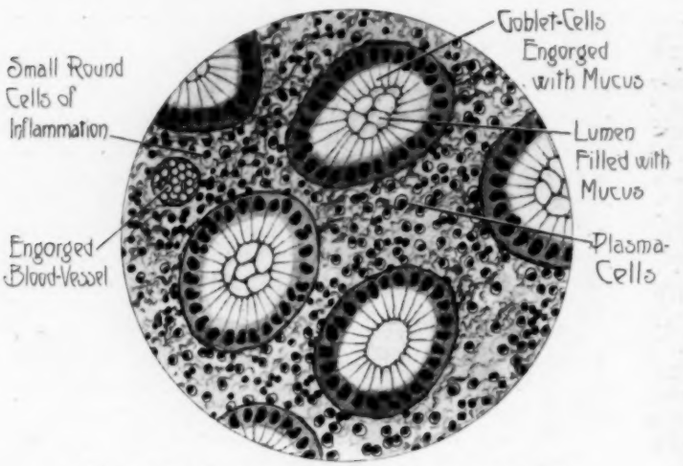

Fig. 1.—Colitis as seen in association with colon stasis.

found frequently in young persons, unassociated with constipation in any form or degree. This, however, does not prove that they bear no relation to stasis. Such diaphanous membranes may be present without compression or strangulation of the colon, in which case they have only a potential clinical significance. Often, however, such veils probably cause or aggravate the condition of stasis.

I have been greatly surprised at the frequent incidence of this delicate vascular form of pericolonic membrane. It may be found in some form or degree about the cecum in nearly every case of chronic appendicitis with stasis. That is, a thin vascular extra peritoneum may be slipped over the underlying serosa in, I believe, at least 75 per cent. of cases of chronic inflammation of the vermiform appendix. I have demonstrated it in twenty-six consecutive cases of chronic appendicitis with constipation, which observation suggests that the movable vascular veil bears the relation of cause or effect to the chronic appendicitis. The interference with drainage caused by the membrane, doubtless, predisposes to appendicitis.

I have found the appendix when buried under a pericolonic membrane to be greatly reduced in caliber, resembling a very slender cord, white and almost bloodless. Occasionally the first proximal inch of the appendix was of normal size, but the filiform strand beneath the adhesions or membranes was of a cross-diameter of only 2 or 3 mm. It is not proved that this form of membrane is always of fetal origin. It seems more probable that it is a result of irritation or infection, developing either in fetal or adult life; but, however that may be, an appendix thus strangulated could hardly drain normally.

Pericolonic adhesions nearly always give rise to disturbances of one kind or another. The constriction and fixation of the intestine produce not only a mechanical distortion inducing stasis and colitis, but certainly in some cases, by establishing abnormal functional conditions, give rise to aberration in the behavior of the gastro-intestinal tract through the agency of reflex action. Thus in some instances, as Hewes has explained:

> Spasm or abnormality of peristalsis of portions of the gut, stasis of contents or gas, may occur in portions far removed from the actual seat of the lesion without the finding of any anatomical variation in the portion where the function is disturbed. For example, disturbances of the stomach, with imperfect emptying of contents, may occur in cases where no distortion of the stomach or duodenum is present, and where the only abnormality found is adhesions about the cecum and stasis of contents.

Like many others I have occasionally been able to relieve colon stasis permanently by division of an enveloping pericolonic membrane, which fact, though it may not prove that the membrane produced the stasis, is at least strongly suggestive. It seems reasonably fair in view of the foregoing data to say that pericolonic membranous adhesions may induce colon stasis, and on the other hand, as a direct result of colon stasis, bacteria may penetrate by exosmosis the coats of the bowel and develop pericolonic adhesions, an instance of vicious circle.

A somewhat similar interchange of cause and effect is presented in the condition of descensus of the colon. If from any cause, such as decrease of intra-abdominal pressure due to relaxation of the lower abdominal musculature, a ptosis of the transverse colon develops, it is clear that the procession of intestinal contents through the V-shaped transverse colon will be slow. It is equally clear that the retardation of the bowel contents in the sagging transverse colon will tend

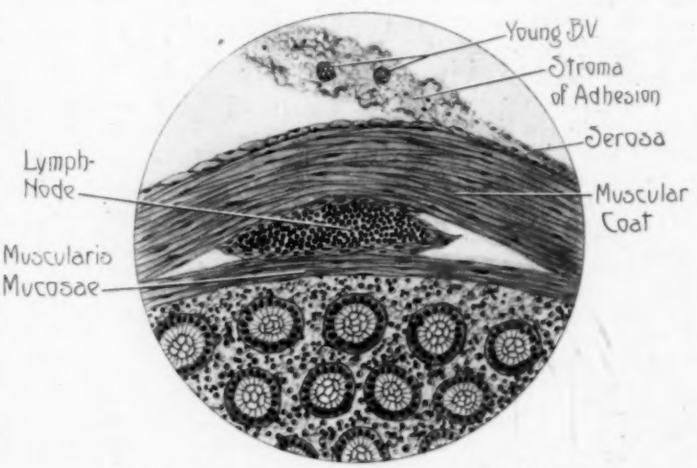

Fig. 2.—Marked colitis as observed opposite pericolonic adhesion.

to maintain or increase the ptosis. Thus, we see how stasis leads to ptosis and ptosis leads to stasis.

A specific illustration of downward displacement of the colon, probably acting as a causative agent of stasis, is represented by the cecum mobile of Wilms. The column of contents of the loaded ascending colon by its weight and hydraulic pressure dilates and pushes the cecum downward into the pelvis. The condition of cecum mobile noted results, and as the direct effect of the ptosis and the fatigue of the muscularis of the

cecum which empties itself, according to Jackson, like a bulb, stasis becomes more extreme, then comes emigration of bacteria and toxemia by exosmosis, and pericolonic membranous adhesions are formed and another vicious circle is completed.

Colitis seems to be a quite constant accompaniment of stasis and colon ptosis. Sections made by Dr. A. C. Shipp, pathologist of Indiana University, from the human colon wall in cases of chronic stasis in which

Fig. 3.—Extensive pericolonic adhesions such as are almost constant about caput coli in dogs.

a short-circuiting operation was performed, disclose, as in the apparently normal dog, chronic colitis evidenced by the presence of plasmatocytes with eccentrically placed nuclei, distended goblet-cells, congested blood-vessels and round-cell infiltration. Colitis may with reason be suspected of causing or increasing stasis. Infiltration of the colon wall decreases its elasticity and contractility and proportionally decreases its propulsive power.

Thus, it appears that each of the elements, stasis, colitis, adhesions or ptosis, may cause any or all of the other three elements or may be caused by any or all of the other three. If this be true, intelligent treatment of any or all of these factors must be based on an understanding of this mutual relationship which takes the form of several correlated vicious circles.

The treatment of colon stasis, by the very nature of its varying causation, must vary according to the peculiarities of each case. Purely medical treatment with petroleum oil, Weir Mitchell feeding after Coffey's plan, which has in view an increasing of the abdominal fat and medical treatment aimed at the arrest of intestinal subinfection, all have an important part in the treatment of intestinal stasis. Hygiene, regular vigorous exercise and proper living will do still more.

As to the surgical treatment of colon stasis, it may be said that this subject is not yet *sprachreif*. Numerous operations have been devised for the correction of the various causative factors concerned in the arrest and stagnation of the intestinal contents. Among the procedures are those of Robert C. Coffey and C. A. L. Reed for the restoration of the ptosed colon to its normal position, and those of Sir Arbuthnot Lane, whose best-known operative exploits are based on Metchnikoff's view that we are better off without a colon.

The surgical procedure to be employed in any given case should be determined not before operation, but after the abdomen has been opened and completely explored. The operation must be made which will most efficiently correct or remove the anatomic or physiologic abnormality which is causing the stasis. In midline ptosis this may mean the hammock operation of Coffey or his operation to increase the capacity of the upper abdomen. In the case of discrete simple band or membrane formation it may mean nothing more than the division or removal of the band or membrane. In the case of a colon so fettered and constricted by pericolonic membranes that it cannot be freed by division or removal of the membrane, or in a colon so hopelessly ptosed that suspension operations cannot be efficient, then colectomy or a short-circuiting operation or both combined are to be considered.

Little or nothing is to be expected from operations for the removal of pericolonic membranes which are at all extensive. I have attempted this many times and my results do not justify continuance of the practice. If one can definitely divide or remove a constricting band or membrane and cover the raw surface which is left, as can be done occasionally, then the operation is justified. Otherwise, it is to no purpose. The leaving of large, denuded areas is sure to be followed by unfavorable results.

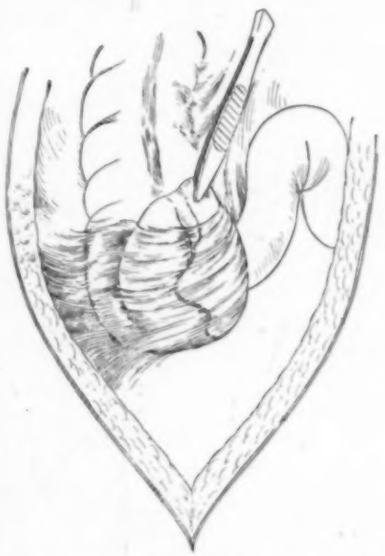

Fig. 4.—Filiform appendix buried under Treves' fold.

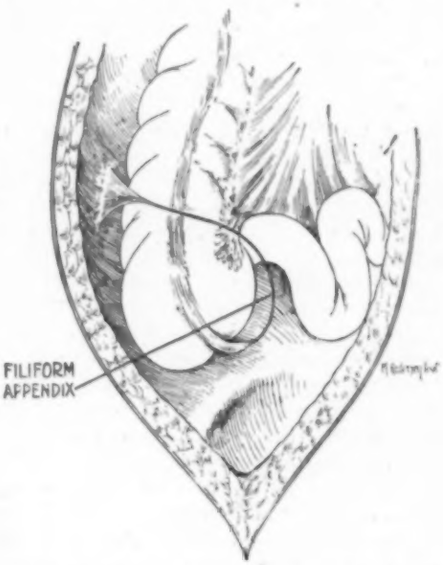

Fig. 5.—Vermiform appendix drawn out into a fine strand, adherent tip drawing out a small membrane from mural peritoneum.

If short-circuiting is to be done, great care should be exercised in selecting the colon surface to be anastomosed.

Mr. Lane places the ileum or cecum against a convenient segment of the sigmoid and the two structures are united, thus throwing 4 or 5 feet of the offending

colon out of commission. This method, although easy of execution, is followed in a considerable percentage of cases by fecal regurgitation and impaction.

Case has shown by numerous Roentgen examinations of patients on whom ileocolostomies had been done that the terminal ileum had become a veritable cecum, often dilated and impacted.

Hamilton Drummond made roentgenograms of patients after ileocolostomy and found a definite dilatation of the terminal ileum. The loop of ileum between the anastomosis and the cecum seemed to have taken over to some extent the function of the colon.

Anastomosis of the caput coli at its lowest level with the rectum presents all of the advantages and eliminates some of the evils of ileocolostomy. Ileosigmoidostomy does not efficiently drain the cecum. It has been shown by Mr. Lane in cases in which colectomy had been performed after an ileocolostomy, that the cecum was tightly impacted.

If the caput coli be anastomosed freely to the rectum at the lowest point possible without traction, then the reversed peristalsis of the ascending colon should favor drainage of the cecum through the artificial opening in the floor of the pouch, which is the chief habitat of ammoniacal food and intestinal bacteria of decomposition, and which even in starvation is not entirely empty (Cannon).

The opening of communication should be amply large. In order that the anastomosis may be made on the most dependent surface of the caput coli, the appendix, though normal, if in the way of anastomosis or good drainage, should be removed. If the sigmoid is dilated and very redundant it should be resected in order that coils of incompetent sigmoid may not remain above the stoma.

It is probable that the Roentgen examination of patients on whom short-circuiting operations have been made will continue to afford surprises. My own experience with such examinations has been both interesting and instructive. It has been the rule that patients operated on after the technic described above have experienced prompt relief, even in cases in which the colon impaction had caused distress for years. In a few cases the bowels began moving daily without stimulation of any kind.

When the serial roentgenograms were made after such an operation for stasis without extensive adhesions in which complete relief had been secured, and while the patient was still in the hospital, I found that the bismuth column did not pass from the cecum through the anastomosis opening as I had hoped it would. The first roentgenogram, made twelve hours after the bismuth meal was taken, showed the cecum filled with bismuth, and subsequent examinations showed the bismuth column rising to the hepatic flexure. Serial pictures made up to twenty-four hours revealed bismuth in the transverse and ascending colons. These pictures were made two weeks after operation, when perhaps the margins of the anastomosis opening were still somewhat indurated and unyielding. A week later, or three weeks after operation, roentgenograms showed that the bismuth column after reaching the cecum passed partly through the anastomosis opening, though the greater part arose in the ascending colon as before. In cases with more extensive adhesion formation and with lifeless colon muscularis, the proportion of colon contents passing through the stoma was greater. The Roentgen examination of such cases has shown how little we know of the hydrostatics of the colon. It seems clear that gravity plays little or no part in the course taken by the colon contents, intra-abdominal pressure having a much more important rôle.

The improvement following short-circuiting operations is probably due in some measure to the relief of colitis with consequent relief of the associated factors mentioned previously. Direct drainage by allowing escape of bacteria-laden secretions leads to improvement in the colitis with consequent increase of propulsive power and proportionate decrease of stasis. This is a probability in stasis cases in which the colon is not completely fettered by firm adhesions. Unless the colon is thus hopelessly enveloped in dense membranes, the purpose of a well-planned short-circuiting operation should be, not to put the colon out of commission, but by relief of colitis and pericolitis *through drainage to put the colon back in commission.*

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THE CONDITION OF A FEW PATIENTS, TWO YEARS AFTER ILEOSIGMOIDOSTOMY *

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The profession in its attitude toward the treatment of ptosis of the stomach and colon may be divided into three classes: (1) those who think that any benefit to be derived from operative procedures depends on the shock given the nervous system by the operation, together with the suggestion of benefit received; (2) those who believe in trying to restore the viscera as nearly as possible to their normal position by various methods, and (3) those who believe in overcoming the effects of displacement by short-circuiting the intestinal tract.

I have been inclined to believe that all three views are correct, and that the difference among them is largely a matter of degree of disability of cases observed. The mildest cases can be much improved by diet, proper rest, exercise and suggestion and almost any operation followed by a few weeks of rest will seem to benefit the patients. Cases of the next class are more severe, and cannot be relieved without some operation that assists the bowel in emptying itself. These various operations for restoring the bowel more or less completely to its normal position answers the purpose for this class. In the third class the large intestine has become so elongated and attenuated that to fasten it up in two or three places increases the number of kinks and does not sufficiently overcome the difficulty of evacuation to enable the bowel to regain its tone.

In support of this view I may say that often the Roentgen ray shows marked displacement of the colon while yet there exists no particular disturbance of its functions. It is my rule when opening the abdomen for any cause to note the location and condition of the colon, just as I examine the gall-bladder and appendix. In many cases I have observed a well-marked displacement, and the history of the case indicated that stasis had existed for considerable length of time, but

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

in the vast majority of cases the patient has improved in this regard after the operation, which was in no way directed to the relief of symptoms on the part of the colon.

As most of these patients are admittedly neurotic, the results of any given procedure can be estimated at their true value only after a lapse of some time. The following cases of ileosigmoidostomy are reported to show the results after two years, which I think is a length of time sufficient to give some idea of the permanency of any relief that has been obtained. The cases are too few to be of much value in and of themselves, but if a hundred other operators will likewise report their cases the statistics will be of real value.

CASE 1.—Operation was performed at the Good Samaritan Hospital, Jan. 15, 1912. I reproduce a previous report[1]: The first patient I saw with my friend and colleague, Dr. Carothers. She was 31 and unmarried. Up to the age of 20 her health was comparatively good, with the exception of painful menstruation, for which she was twice curetted without relief. At the age of 28 the abdomen was opened and the left ovary and appendix removed. After this the patient's health was only fair; she had headaches and ill-defined pains continuously, for which she consulted internists, orthopedists, oculists and rhinologists. When I saw her she was absolutely unable to work and manifested in a marked degree all the symptoms of colonic stasis. She was afraid to eat on account of the difficulty experienced in evacuating the bowels. Before the operation this patient had not had a stool without the use of strong purgatives for over five years. On the third day following the operation the bowels moved of their own accord and continued to do so up to the present time. For the first week the stools were rather too frequent and loose and irritated the skin around the anus. Since that time the condition of the bowel has been quite satisfactory.

The patient has gained 15 pounds and has been following her work as a hair-dresser and solicitor. Her skin has cleared and her general health improved in every way, and is much better than she had ever been previous. She occasionally is slightly constipated, but an enema is all that is necessary to relieve her.

CASE 2.—Miss S. came to me on account of "stomach trouble." She had constant pain in the abdomen and was absolutely unable to work. I could scarcely get her to take enough food to nourish her on account of the distress it gave her. Her bowels moved only with violent purgation. After a month's observation and treatment I advised operation and she immediately consented. The operation was performed and her bowels moved on the third day without any assistance and were rather too loose. Within a week she was eating better than she had for years. Once since she went home she has been slightly constipated, but this was from drinking large quantities of milk.

This patient was in my office within the last month. She came, however, to ask my advice as to the diet for her baby. Six months after the operation she married and in due time delivered a healthy child at full term without any trouble. She nursed her baby with satisfaction to the child and without interfering with her own nutrition. She can now eat anything she wants and calls herself a well woman.

CASE 3.—In the case of Miss G., aged 35, menstruation began at the age of 13, and was irregular the first year, later becoming regular and painful. She had suffered from constipation as long as she could remember. She complained of ill-defined pains over the abdomen. She had periods of most profound melancholia and fits of uncontrollable temper. She had worked as a dress-maker but was forced to give up on account of her health. She was treated by a general practitioner of ability, but he diagnosed her case as hysteria and treated her without sympathy and without benefit. Her mental condition was getting worse. I saw her in consultation. Physical examination showed the uterus not well developed, with a long narrow cervix, sharply anteflexed. A fibroid the size of a hickory-nut was present in the anterior wall of the uterus. I advised a thorough dilatation of the cervix, curettage and packing of the uterus, followed by several weeks of rest in bed in a hospital. The large doses of purgatives necessary to move the bowels exhausted her. After two weeks in the hospital I saw that I could not improve her condition any further by rest and changed surroundings. She was sent home and ordered to walk several squares every day, eat large quantities of fruit before breakfast, and take cold sponge-baths. Several times a day she was to exercise by bending forward till her finger-tips touched the floor and then straightening up. Under this regimen she about held her own, but made no further progress. It took 10 grains of compound extract of colocynth with 5 of cascara to move her bowels. Dr. Dudley Webb made roentgenograms of the stomach and intestines, showing ptosis of the colon and slow motility. She returned to the hospital, and on May 22 I did an ileosigmoidostomy and also removed the small fibroid. The bowels moved on the third day without a purge.

The patient was in my office last week; she is the picture of health, with skin clear, eyes bright and a constant smile on her face. She has gained 65 pounds. She has been clerking in a jewelry store and has not missed a day of work since January 1. Only once this year has she found it necessary to take an enema.

CASE 4.—Mrs. G., aged 38, German, was exceedingly nervous and unable to work, with ill-defined pains over body and discolored skin. Patient was always constipated, giving a history of taking large quantities of Epsom salts before being able to obtain even a slight bowel movement.

Six months after ileosigmoidostomy she reported as being greatly benefited. A letter received within the last week says that she has not gained much in weight and that occasionally she has to take a purgative. There is evidently considerable improvement in this case, as the patient is able to do all her housework, including the washing for a large family, which was entirely out of the question before operation.

CASE 5.—Mr. C. had been a neurasthenic all his life. Constipation in this case was also so severe that it took large doses of purgatives to move the bowels. He suffered greatly from headaches, which completely prostrated him. He had no appetite; there was a marked discoloration of the skin, due to intestinal absorption. The Roentgen ray showed the colon in fairly good position but a greatly elongated sigmoid. Ileosigmoidostomy was done at Bethesda Hospital, the ileum being attached as low as possible.

The patient's body-weight remains practically the same. His bowels move without any trouble, but occasionally he has to take a purge. His headaches are less frequent and less severe. His color is greatly improved and his nervous symptoms decidedly better. I received this report from his family physician this past week.

CASE 6.—Miss R., a neurasthenic of the worst type, was operated on at Bethesda Hospital, Nov. 2, 1911. The uterus was curetted and the right ovary, which was cystic, removed. At this time I noted that the colon was elongated and prolapsed. After the operation she did not improve as I expected her to do, so I advised the ileosigmoidostomy. The following July (1912) during my absence from the city Dr. Carothers performed this operation. She immediately improved and her family physician, Dr. Cadwallader, reported to me this last week that the improvement has been lasting.

It would seem that the results are most satisfactory in the patients who live in the city where I could see them occasionally and give them advice as to diet, etc.

These are all of the cases that I have been able to follow for a full two years or more. The cases are too few to justify drawing any definite conclusion, yet

1. Bonifield, C. L.: Ileosigmoidostomy for Colonic Stasis, Am. Jour. Obst., February, 1913.

straws show the way the wind blows and I shall continue to perform the operation in carefully selected cases. I have carefully avoided trying to swell my list of cases by doing the operation when it was not absolutely necessary. I would not advise the operation in any case until the ptosis has been demonstrated to exist and the Roentgen ray and bismuth have shown as well that there is a marked retardation of the fecal current; and then it is wise to have a good internist see how much improvement he can secure by diet, exercise, etc. When all other methods have failed, however, I believe this operation has a distinct place in surgery.

In many cases this advanced condition has been warded off by proper treatment while the patient is still young. Other patients, while they may not be cured, can be greatly benefited by exercise, diet and improvement of the general health and particularly the nervous system. So it can be seen that I believe that the cases in which this operation is indicated are comparatively few. I hope in the future a better understanding of the etiology of the condition will enable the family physician to make the cases still fewer. In the meantime, however, I think we can by the judicious use of this operation restore some people to their proper useful sphere in the world.

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RESECTION OF THE FIRST PORTION OF THE LARGE INTESTINE AND THE RESULTING EFFECT ON ITS FUNCTION *

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Human beings vary in their internal anatomy in about the same degree that they vary in their external form and configuration. Were a man who was thin and 6 feet high to ask us to make him fat and 5 feet 6 inches high by operating on him, we would think him mentally deranged. Yet how frequently in the past have we attempted to correct surgically the internal anatomy because of variations from the average normal, especially the position of the abdominal viscera.

It is less than ten years since nephrorrhaphy, ventrofixation, gastrorrhaphy and kindred operations were resorted to on indications which would not be accepted to-day. We have come to appreciate the fact that comparatively few of the abdominal viscera have unchangeable anatomic characteristics and that variations within limits are not to be considered abnormal.

The large intestine, with its short heredity and changing function, has no such fixed characteristics as have the more primitive small intestines. Arising on the left side of the body, the head of the colon swings to the right but does not reach its normal habitation until after birth. The peritoneal cavity has then already been formed and its attachments on the right side may take on the character of adhesions, in many instances causing that condition which Jackson[1] has so aptly termed a "veil." This looseness of attachment of the ascending colon and hepatic flexure permits of freer movement of the right kidney. The terminal ileum normally comes up out of the pelvis and enters the cecum at an acute angle. The ileocecal valve is a sphincter mechanism acting to hold the ileal contents and delay their progress, and this stasis within limits is normal. Early in fetal life the ileum becomes attached to the inner side of the cecum. This fixation prevents expansion on the inner side and, because of its inability to expand in all directions, the cecum assumes a lopsided appearance. An exaggeration of the sustaining bands is often called ileal kinks.

The large intestine, within normal limits, varies in length and position, especially the transverse colon and sigmoid. The high fixation of the splenic flexure of the colon, economically taking the place of a muscular sphincter, is a fixed characteristic and performs an important function. It holds within the proximal half of the large intestine the ingesta which have been passed into it from the small intestine and delays their progress that fluids and nutritive material may be absorbed therefrom. When the waste remnants move beyond the splenic angle they pass rapidly through the descending colon, which acts as the vestibule to the sigmoid, the normal fecal container. As pointed out by Rokitansky[2] more than sixty years ago, the descending colon is normally empty.

Usually when we speak of the cecum we mean the cecocolon or head of the colon which includes the cecum, ascending colon and hepatic flexure. The cecum itself is the end-pouch only and is but from 1½ to 3 inches in length.

It is altogether probable that in the past too much importance has been attributed to purely incidental changes in the position and attachments of the large intestine. Bands, kinks and adhesions of a normal character have been given a fictitious rôle in the supposed production of symptoms which were not in themselves mechanical. Adhesions, bands and kinks are not usually congenital in the sense that they are formed prenatally and then remain as formed, but they change in character throughout life. The interesting work of Lane,[3] Pilcher,[4] Gerster,[5] Gray,[6] Pringle,[7], Binnie,[8] Jackson,[1] Eastman,[9] Flint[10] and many others has thrown much light on the origin of these bands. We are indebted to the pioneer work of Lane for calling our attention to the fact that in the large intestine may lie the cause of much human misery. While I do not agree with Lane in the great stress which he lays on the rôle of bands, kinks, etc., I am convinced that he has discovered a great physiologic truth not heretofore recognized, and he must be fully credited with bringing forward this most important question. Whether or not we agree with him, we must at least recognize the facts on which his contention rests.

The villi of the small intestine are to man as roots to a tree. In early fetal life the first half of the large intestine contains villi the same as the small intestine; and while these villi in later development are lost as anatomic structures, the power of absorption remains. We speak of rectal feeding as though food were actually absorbed in the rectum. As a matter of fact, food or other material placed in the rectum is promptly

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Jackson: Tr. Western Surg. and Gyn. Assn., 1908, xviii, 269.
2. Rokitansky: Handbuch der spec. path. Anat., 1842.
3. Lane: Brit. Med. Jour., May 4, 1912, p. 989; Surg., Gynec. and Obst., November, 1910, p. 495; Lancet, London, Dec. 21, 1912, p. 1706.
4. Pilcher: Ann. Surg., January, 1912, p. 1.
5. Gerster: Ann. Surg., 1911, liv, 325.
6. Gray: Brit. Med. Jour., Jan. 24, 1914, p. 177.
7. Pringle: Brit. Med. Jour., Jan. 24, 1914, p. 183.
8. Binnie: Month. Cycl. Pract. Med., 1905, xviii, 341.
9. Eastman: Surg., Gynec. and Obst., April, 1913, p. 361; ibid., February, 1914, p. 228.
10. Flint: Johns Hopkins Hosp. Bull., October, 1912, p. 302.

carried by reverse peristalsis toward the head of the colon for absorption and assimilation.

What is the function of the large intestine? Beyond the splenic flexure it is to a great extent a storage organ. But proximal to the splenic flexure the colon, and especially the cecocolon, has a most important assimilative function. We know that in the carnivora the large intestine is small as compared with its great size and importance in the herbivora. In the herbivora the large intestine and especially the cecocolon may be compared to a silo in which fermentation of vegetable matter takes place, freeing nutritive material of the greatest value.

The function of the appendix, a part of the large intestine, is practically unknown. The organ in man has been looked on as the vestigal remnant of a herbivorous cecum. Keith[11] dissents from this view, believing that the appendix is a lymphoid organ having a function comparable to that of the tonsil and solitary follicles of the intestine. Ribbert[12] has demonstrated that beginning at adolescence a progressive involution takes place in the appendix, and that in persons at the age of 50 one-half of all appendixes show age characteristics. An appendix which would be normal in a person at 50 years would be abnormal in a child. The same may be said of the tonsil.

C. H. Mayo,[13] in 1903, pointed out the surgical significance of the progressive atrophy of the lymphoid structures of the body after adolescence, thus explaining why cancer in old persons does not spread with the rapidity it does in youth because of the atrophy of the lymphatics.

We must therefore look on the appendix as a lymphoid organ which in early life has some value in connection with cecocolic metabolism. It is interesting to note that in the carnivora, which do not have an appendix, lymphoid tissue of the same nature as that found in the appendix is to be found at the apex of the cecum, the site of the appendix were it present.[14]

It has been suggested that the appendix may through chronic inflammation vaccinate the patient against subsequent colon infections.

Reasoning from analogy, we can say that the functional activity of the proximal half of the large intestine concerns vegetable intake. It has been shown that within 100 years the flesh intake of man has increased four times.[15] The decomposition of unassimilated flesh food develops poisonous substances. It is reasonable to suppose that when these end-products are passed into the large intestine, which has developed to a full extent only the power of caring for vegetable material and fluids, such products may be absorbed, thus disturbing the sympathetic balance and producing many of the symptoms which we speak of in our ignorance as neurasthenia, and which sometimes have been thought to be the result of mechanical conditions, bands, kinks, etc. In this connection, a peculiar type of constipation with a thin-walled bowel with no abdominal distention may frequently be noted. The abdomen is soft and silent as compared with that encountered in true mechanical obstruction with its intestinal stiffening, colic and abdominal distention. The general condition of the patient often well illustrates this sympathetic disturbance. A severe case may even resemble an exophthalmic goiter, for which it may be mistaken. Why may not these persons be cured by a purely vegetable diet? When we consider that man as a species is at least 500,000 years old and that his present characteristics have slowly evolved—so slowly, indeed, that the evidences of prehistoric man show him anatomically to be essentially the same as to-day—the futility of attempting to change during the lifetime of a single individual the whole history of race metabolism is evident.

Fig. 1.—Anatomy of the lower ileum and first half of the large intestine.

Adami[16] objects emphatically to the use of the term "auto-intoxication," since proof of such process is lacking. He believes that a low grade of bacteriemia with a local *subinfection* of various vital organs is

11. Keith: Lecture, Royal College of Surgeons, October, 1913.
12. Ribbert: Virchow's Arch. f. path. Anat., cxxxii, 66.
13. Mayo, C. H.: Tr. South. Surg. and Gynec. Assn., 1903, xvi, 442.
14. Corner: Ann. Surg., 1910, lii, 512.
15. Armstrong: Brit. Med. Jour., July 8, 1905, p. 68.
16. Adami: Brit. Med. Jour., Jan. 24, 1914, p. 177.

responsible for the disturbance, and in this he is probably correct in most cases; but obstruction of the bowels produced experimentally by Whipple, Stone and Bernheim[17] shows the poisonous effect of the secretions of the upper jejunum and duodenum when acutely blocked, independent apparently of infection, an effect which these authors speak of as an "intoxication." Clinical experience in acute intestinal obstruction as it occurs in man seems to bear out these experiments. For this reason a high enterostomy in acute intestinal obstruction gives quicker and surer relief than one down closer to the actual point of obstruction.[18] Vaughan,[19] in his notable work on protein metabolism shows the specific character of the poisonous effects which are produced by failure properly to split up proteins and their relation to food idiosyncrasies and anaphylaxis.

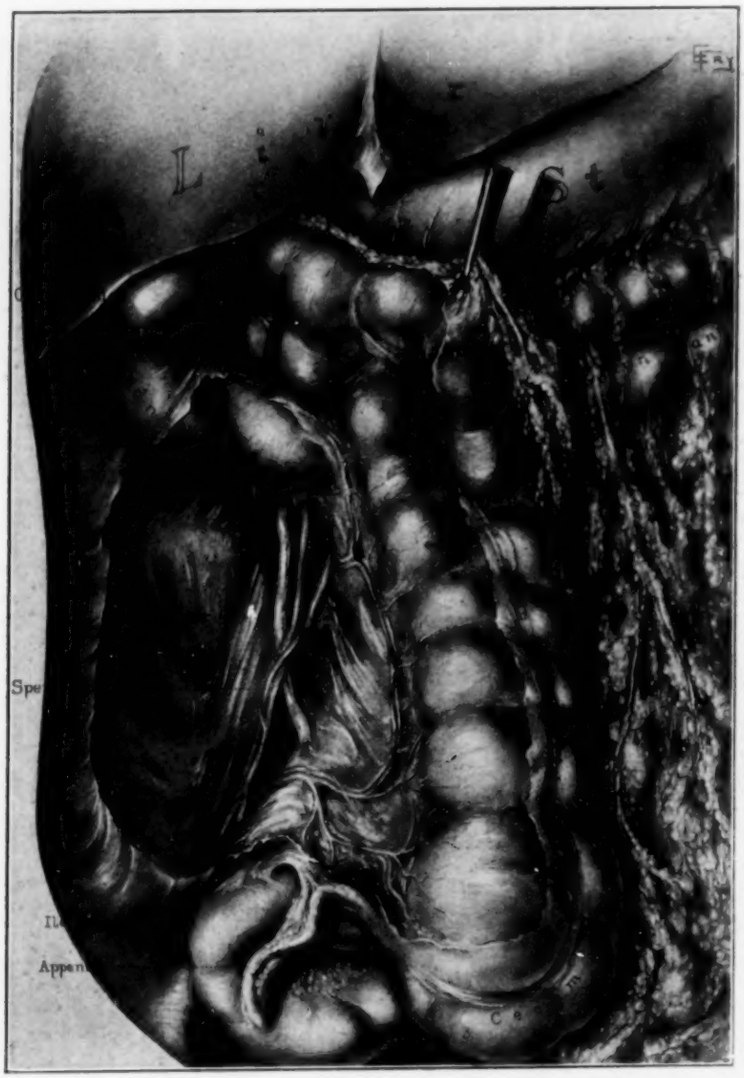

Fig. 2.—Division of the peritoneum which binds cecum and ascending colon to the abdominal wall. Retro-duodenum spermatic vessels and ureter exposed.

Hypersecretion or hyposecretion of the thyroid and hypophysis and the various other glands of internal secretion may have its counterpart in like conditions of the glands of the intestinal mucosa. In lieu of a more expressive term and in the absence of a scientific explanation of the clinical phenomena, intoxication may be used temporarily as a term to express the hypothetical condition. Intoxication is at least a graphic term for these conditions, meaning the absorption of chemical substances, no matter how produced; substances which may be absorbed without leaving in their path infective lesions in the mucosa of the intestine at the place of absorption or resulting in the bacterial invasion of organs.

Putting aside for the moment these anatomic and physiologic considerations, I wish to discuss the effect of the removal of the cecocolon, first, as a means of physiologically limiting absorption, and, second, as to its effect on the storage function of the bowel, that is, on constipation. These two conditions go hand in hand: namely, so-called stasis of the large intestine with a train of nervous derangements and constipation. In 1900, I reported[20] some cases of obstinate constipation which had been cured by an enlargement of the ileocecal orifice, and suggested that constipation may be many times primarily dependent on constipation of the small bowel; that food products might be retained in the small intestine for too great a length of time and not furnish the necessary chemical stimulation to activate the large intestine. I am convinced that the observations which were made at that time and which have been continued in the intervening years were essentially true, and that we may go still further and say that retention of these products not only in the small intestine, but in the cecocolon has a similar effect in diminishing the stimulation to action in the storage-half of the large intestine. Lane,[21] by means of ileocolostomy, has apparently demonstrated the value of this stimulation and its effect not only on constipation, but also on the metabolism of the individual. Hertz and Newton[22] have shown that food intake furnishes a gastro-ileac reflex and the ileocecal valve opens and allow the lower ileum to empty its contents. A gastrocolic reflex occurs simultaneously and the cecocolon forces its contents onward. It is possible that the ileocecal valve is controlled by the cecocolon just as the pylorus is controlled by the duodenum. Ileocolostomy, however, in a certain percentage of cases, especially in adults, leads to an impaction in the disused colon through reversed peristalsis, and thus in some cases to a continuous absorption of poisonous products quite as though ileocolostomy had not been performed.

From a small number of patients — about twenty — in whom exaggerated conditions of cecocolic stasis with the train of general nervous symptoms which go with it and in all of whom constipation amounting to obstipation was present, we have removed 10 inches of the terminal ileum, appendix, cecum, ascending

17. Whipple, Stone and Bernheim: Jour. Exper. Med., February, 1914, p. 144.
18. McKenna: Surg., Gynec. and Obst., December, 1913, p. 674.
19. Vaughan: Protein Split Products in Relation to Immunity and Disease, Philadelphia, Lea & Febiger, 1913.
20. Mayo, W. J.: Ann. Surg., 1900, xxxii, 364.
21. Lane, W. A.: The Operative Treatment of Chronic Constipation, New York, Paul B. Hoeber, 1909.
22. Hertz and Newton: Jour. Physiol., 1913, xlvii, 54.

colon, hepatic flexure and a portion of the transverse colon, but not trespassing to a great extent on the part of the transverse colon which contains the omentum. If all of the omentum is removed, as happens in colectomies, in many cases intestinal adhesions of the most severe type subsequently occur, often causing unfortunate sequelae. The cases in which operation was performed were all of an advanced grade and in all there were bands, kinks, adhesions and possibly obstruction, but, if so, of the peculiar silent type with a soft

Fig. 3.—Result after removal of 10 inches of ileum, appendix, cecum, ascending colon, hepatic flexure and one-fourth of transverse colon. End-to-side ileocolostomy. Running suture closing peritoneum of posterior wall.

abdomen and without muscular hypertrophy of the intestinal wall.

In the cases in which we have made the above mentioned resection, and joined the end of the ileum to the side of the transverse colon, there has usually been a marked improvement in the general condition of the patients, and in 87 per cent. relief from the constipation. In nearly all these patients the appendix had previously been removed, and in a number of them other operations, such as elevation and fixation of the cecum combined with narrowing of its lumen, etc., had been done without relief. To test the question of the effect of eliminating the ileocecal mechanism and removing the proximal colon in constipation, we have grouped together all the cases in which the head of the colon was removed without regard to the pathologic conditions which lead to the operation, and have investigated the effect the operation has had on the evacuation of the large intestine. It was found that nearly all the patients who had been constipated before the operation have been much relieved postoperatively. Yet in but one case has diarrhea been manifested. It would seem a reasonable assumption, therefore, that in physiologic disturbance of the terminal ileum and cecocolon lies the cause in some cases at least of the protean manifestations of intestinal toxemia and constipation, and that the removal of the cecocolon will relieve many of these patients.

Although the operation is a serious one, we have lost no patients operated on for this condition. The number of persons whose condition in our opinion would warrant the risk, however, is comparatively small, and I cannot but deplore the widespread adoption by the medical profession of surgical measures for this or allied conditions while it is in the experimental stage with little evidence to show that the supposed cures are permanent. When one looks back over the fads and fancies in medicine, especially as applied to the so-called neurasthenic group of patients, one may well pause and make haste slowly.

THE REDUNDANT SIGMOID*

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THE NORMAL SIGMOID

The sigmoid flexure, more properly called the pelvic colon by the French, the segment of intestine which connects the descending colon with the rectum, is of variable length. In cases in which it was functionally normal, or, in other words, in which it was symptomless, I have seen it as short as 15 cm. (6 inches), and I have encountered it as long as 85 cm. (32 inches), while other observers have found it as long as 108 cm. (42 inches). In a series of sixty-two cases of redundant sigmoid of which I have roentgenographic records, I have not so far had occasion to observe a single instance of sigmoid over 25 cm. (10 inches) in length in which it was not the seat of either functional or organic disturbance logically attributable to redundancy. I do not assume that sigmoids of more than 25 cm. (10 inches) in length do not exist in which, for most of the time at least, the function of the intestine is exercised without perturbation. Cases of this kind, however, do not come to me for treatment and I, therefore, have no occasion to observe them. From these facts, I am forced to conclude for the present, that while in the adult, the normal sigmoid is from 15 cm. (6 inches) to

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25 cm. (10 inches) in length, the question as to what is and what is not a normal sigmoid relates quite as much to physiology as to anatomy.

RELATIONS OF THE SIGMOID

The full surgical significance of the colon, or to put it more broadly, its full clinical significance, cannot be comprehended without due consideration of its relations. It is important at least to remember that, in the male, the sigmoid, when redundant, may lie in contact with the left ureter, the left iliac vessels and the left sacral nerves, the bladder, prostate and rectum; while in the female, it may lie in contact not only with these structures, excluding, of course, the prostate, but also with the vessels in the left broad ligament, with the left fallopian tube and ovary, and with the uterus itself. The pelvic lymphatics on the left side may also be subject to pressure by a redundant sigmoid. The degree to which these structures are influenced by the superimposed weight of the redundant sigmoid is, of course, relative to the redundancy itself, to the incidental development of the mesosigmoid and, still more incidentally, to the amount of sigmoidal content.

Fig. 1.—In this and the following roentgenograms are illustrated some types of sigmoid as shown by the Roentgen ray. In this illustration is shown very redundant sigmoid which drops above the umbilicus when the patient's shoulders are lowered. (Trendelenburg position).

Fig. 2.—(Trendelenburg position) showing large sigmoidal loop which drops heavily on the pelvic organs when the patient is in the upright posture.

THE FUNCTION OF THE SIGMOID

It is probably true that, in the normal person, the sigmoid is chiefly a conduit for the less rapid transit of the intestinal content from the colon to the rectum. In other words, in the healthy subject, it is after periodic and more or less rhythmic evacuation generally relatively free from fecal content. At the same time, it must not be forgotten that the sigmoid is provided with an active absorbent apparatus whose ostia connect with the chyliferous apparatus in the mesosigmoid, which in turn connects with the larger chyliferous vessels in the mesocolon. It is furthermore to be remembered that the sigmoid is the habitat of an abundant flora. In addition to this, especially in cases of fecal stasis, are to be found the usual toxins that result from bacterial decomposition. These facts, thus briefly stated, indicate at once the great functional importance of the sigmoid and its potentiality as a possible disturber of the peace in the human economy.

SOME PATHOLOGIC STATES OF THE SIGMOID

The disturbances which I shall consider in this connection as being caused by the sigmoid are due to function-disturbing variations from the normal type. Those which I wish more particularly to present to-day are based on observations in cases in which I have operated specifically for conditions within the sigmoid itself, as in the accompanying tabulation.

Redundancy	18	
Neoplasms	5	
Diverticula	2	
Adhesions	4	29
Redundancy and ptosis in connection with similar conditions of the colon	43	14
Total		43

This table represents less than 50 per cent. of the cases that have been referred to me for operation, and in which I have demonstrated a sigmoidal factor, the remainder of the cases having been afforded a *modus vivendi* by other means. It likewise represents less than 20 per cent. of the cases in which I have found redundant sigmoid as the concomitant of redunant and, of course, ptosic colon. In fourteen of these colosigmoidal cases, as shown in the table, I have corrected the condition of the sigmoid. The latter operations have been done in my later practice, and since I have become convinced of the important rôle of the redundant sigmoid as a factor in the causation of disease. At the same time, it represents all the cases, eleven in all, in which I have so far operated for neoplasms, diverticula and adhesions that were essentially restricted to the sigmoid. This, I believe, is in a measure an index to the relative frequency of these conditions. I shall, in the present instance, confine my attention to a discussion of the redundant and ptosic colon.

REDUNDANT SIGMOID

The sigmoid is here considered redundant in all instances in which it is in excess of 25 cm. (10 inches) in length, and in which it is the seat of symptoms logically referable to redundancy. There are, of course, no data on which one may estimate the frequency of this condition for the simple reason that symptomless subjects do not submit themselves for examination. There are, however, many variations in the morphology of the redundant sigmoid.

A very constant feature is the redundant mesosigmoid which, in both normal and abnormal subjects, is always relatively short above at the juncture of the

sigmoid with the descending colon, and, below, at its juncture with the rectum. It is always relatively long, sometimes very long, occasionally as much as 25 cm. (10 inches) in the interval between these two points.

THE DIAGNOSIS OF REDUNDANT SIGMOID

The diagnosis of redundant sigmoid is based on a very variable symptomatology. Probably the most constant symptom is constipation, with more or less colicky pains. These colicky pains are more liable to precede than to attend efforts at defecation, although they may be experienced at both times. The constipation is liable to alternate with diarrhea, especially in cases of so-called mucous colitis with a large proportion of mucous content in the stools. There are generally more or less pressure-symptoms in these cases. Pain referable to pressure on the sacral plexus, generally more marked on the left side, but often present on both sides, is generally present. Cystic irritation, generally without mucus in the urine, is rather a frequent complaint. In men, there is often discomfort distinctly referable to the prostate and obviously resulting from pressure on that gland. In women, there is generally marked tenderness in the ovarian regions, especially on the left side. This may be due to pressure not only on the ovary itself, but also on the vessels and nerves within the broad ligament.

Pain at the more fixed points of the colon, namely, the hepatic and splenic flexures, is frequently present, because of the frequency with which the redundant and ptosic colon is a concomitant of the redundant and ptosic sigmoid. Pain just under the margins of the ribs in the left upper quadrant is especially significant of angulation and consequent retardation at the splenic flexure.

In many of these cases, hemorrhoids, due both to pressure and to straining at stool, exist as a distinct complication. One important fact that I have observed as a very constant feature in the several hundred cases that I have examined is that pain referable to the redundant and overloaded sigmoid is generally relieved when the sigmoid is emptied, and that it remains relieved as long as it remains empty.

Physical examination generally reveals dulness in the left lower quadrant. This is sometimes associated with fulness which, in extreme cases, is suggestive of a new growth. There is very liable to be an abnormal increase of resonance over the colonic areas which, it should be remembered in these cases, owing to generally equally redundant colon, are to be found entirely in the lower zone of the abdomen. Female patients should be examined in the erect posture, by digital exploration of the vagina, when pressure, sometimes with a mass, may be detected above the pelvic diaphragm. I have found examination by the proctoscope and sigmoidoscope not only annoying to the patient, but also of negative value as means of diagnosis in these cases.

ROENTGEN EXAMINATION FOR REDUNDANT COLON

The conclusive method of examination is, of course, by the Roentgen ray. It is important in this connection to state that these pictures should always be made by an expert, and that to give an adequate conception of the case, certain cardinal rules should be observed namely: (1) The large bowel, clear to the cecum, should be emptied; (2) the barium solution should be used in quantity sufficient to fill the large bowel clear to the cecum; (3) pictures should be made with the patient in the erect, the recumbent and the extreme Trendelenburg posture; (4) the patient should then be given not less than 8 ounces of the barium solution by mouth; (5) pictures of the stomach should then be taken with patient in various positions; (6) pictures, especially with the patient in the Trendelenburg position, should then be taken beginning about fifteen hours after ingestion of the solution, and at shorter intervals thereafter, until all the barium has passed into the rectum; (7) time observations of stomach clearance and of food transit are best made after incorporating barium with an ordinary meal.

Fig. 3.—A very large sigmoidal loop associated with cecum mobile and ptosic colon (erect posture).

Fig. 4.—Figure-of-eight sigmoid (Trendelenburg position).

These rules, adopted by Dr. Sidney Lange, who has made practically all of my Roentgen-ray examinations, have yielded results which in no instance have failed of confirmation at the subsequent operation.

LOCAL SEQUELAE OF REDUNDANT SIGMOID

Local sequelae of the redundant and ptosic sigmoid are various and may be classified as (1) those that relate to the sigmoid itself, and (2) those that relate to adjacent organs and structures.

1. Among those that relate to the sigmoid itself is inflammation. In practically all of my cases, there has been a history of sigmoiditis sometimes present at the time of examination, but more generally with a history of previous attacks, characterized by mucous diarrhea. This is due not only to mechanical interference with the blood circulation, but especially to mechanical retardation of the fecal current with a consequent elaboration of the toxins of bacterial origin. In certain instances, the follicular infection becomes so pronounced that the endothelium is

broken down, granulation tissue is thrown out and more or less distinct areas of ulceration are developed. Secondary to these changes and as a necessary incident to their recovery, is the formation of bands of scar tissue which, in turn, become sources of irritation. These changes are most liable to occur at the juncture of the sigmoid with the rectum. The fact that it is precisely at this point that cancer is most liable to occur, and the well-known relation of this disease to persistent irritation, certainly comprise a substantial reason why the underlying causative condition should not be allowed to continue. It should be remembered, too, that when the endothelium is once broken down, atria are thereby formed for the convenient introduction of other infections.

2. Among the intrapelvic disturbances induced in adjacent organs and structures by the redundant sigmoid are chiefly those which may be attributable to pressure. I have already called the attention of this Section to the influence of this pressure in causing uterine displacements and functional disorders of the ovaries characterized by pain, especially at the menstrual period.[1] I have already referred in this paper to the effect of this pressure in inducing irritation of the bladder in both sexes and of the prostate in the male. The influence of this condition in causing hemorrhoids and their sequelae is so generally recognized and is so manifest that its further discussion is not required in this connection.

Fig. 5.—A redundant letter S sigmoid was the source of pressure on the prostate (recumbent posture).

Fig. 6.—An enormous sigmoidal redundancy with hypertrophy but without corresponding condition in the colon (upright position).

SYSTEMIC SEQUELAE OF REDUNDANT SIGMOID

It is, however, with the remote or systemic consequences of the redundant sigmoid that the general practitioner has his most baffling contention. These induced systemic states, so far as they relate to the sigmoid, are less confusing if they are recognized as being most generally equally attributable to colonic origin. In other words, redundancy and consequent ptosis of the sigmoid and the colon occur so generally together that both must be taken into account in the estimation of their systemic consequences. I am, however, to-day emphasizing the sigmoid end of the proposition only because it represents the etiologic factor now most generally overlooked by both the general practitioner and the surgeon.

It may, therefore, be said at the outset that the remote or systemic results of redundant colon are effected through two distinct avenues of influence: first, the circulations; and second, the nervous system. It is obvious, from what has already been said, that toxins elaborated from the abundant bacteria, as the result of fecal stasis, first reach the system through the ordinary channels of absorption. A little later, when the endothelium is broken down, these toxins and other infectious elements may find a short cut into the blood-current. In these ways, one or both, the blood becomes the effective final carrier and distributor of agencies that deleteriously influence not only metabolism, but specifically the processes of hematogenesis.

While this is going on, we have to reckon with the element of pain. It takes violent muscular effort on the part of the large bowel to force hardened fecal masses around sharp corners. This means pain, sharp colicky pain, and persistent pain means unhappiness while it lasts, and more or less exhaustion of the centers when it is over. The pressure exerted on other organs, such as the ovaries, the fallopian tubes, the bladder, the prostate, the rectum, causes pain, and this pain, too, is registered on centers already hypersensitized by toxic agents carried to them by the blood.

Then, following in the wake of this unhappy state, are other changes of more serious significance. With the infection thus reaching the circulatory current, we have established what is now recognized as the underlying pathology of rheumatism, gout, arthritis and arteriosclerosis — a relationship that was pointed out by Glénard thirty years ago under the general term of "arthritism." We trace the process a little farther and find these toxins, together with toxic products of metabolism, carried to the great emunctories for elimination. These organs, in turn, become the seat of infection and of secondary changes, such as are manifested in chronic interstitial nephritis and in chronic interstitial hepatitis with their end histories of cirrhosis—a process likewise recognized by Glénard and designated by him under the general term of "hepatism." In other words, a survey of the systemic conseqences of the infection, or the subinfection, or the intoxication originating in the large intestine, forces on us what the late lamented Forchheimer designated as "a new viewpoint in medicine."

SECONDARY SYSTEMIC SEQUELAE

There are certain conditions which do not comprise distinct links in the chain of events as defined by Glénard, which are materially influenced, if not determined, by colosigmoidal redundancies and consequent stasis. They are, for the most part, conditions resulting from entirely independent causes, generally

1. Reed, Charles A. L.: Constipation and Headache in Women, THE JOURNAL A. M. A., Aug. 3, 1912, p. 354.

infectious, which are obviously logically and inevitably influenced for the worse by the toxemias and the nerve perturbations incident to the conditions just enumerated. Let me make a few illustrative citations:

An eminent lawyer, after three years' confinement in a sanatorium for simple melancholia, was referred to me by Dr. Herman H. Hoppe of Cincinnati; restoration of the sigmoid and colon by my fixation methods resulted in his return to a large practice within two months after operation.

A merchant referred to me by Dr. J. W. Hall of Chicago had been a neurasthenic for years, was mentally depressed and had interstitial nephritis (a link in the Glénard chain); an ileosigmoidostomy resulted in his complete restoration to health, including disappearance of his kidney complication, and in a realization of efficiency beyond his original standard.

A physician had been compelled to abandon his practice because of persistent pain, including a chronic prostatitis; an anastomotic operation, excluding both the colon and the upper loops of the redundant sigmoid, resulted in a cure of the prostate, the disappearance of all neuropsychic phenomena and the resumption of a large practice.

A young woman who had been for a time in the Ohio Tuberculosis Hospital at Mount Vernon, was referred to me by Dr. ——— of Loveland; a fixation operation resulted in the complete restoration of her nutrition and the ability to throw off any remaining tuberculous infection.

Cases of diabetes mellitus have shown marked improvement following restoration of normal conditions within the large bowel. Rheumatism bears such a demonstrable relationship to infections of intestinal origin, that cardiac complications of rheumatic origin must be reckoned among the remote sequelae of such infection.

The situation may be summarized by the statement that any systemic or even local disease that is deleteriously influenced by impaired nutrition must necessarily have an important sequent relationship to coexisting redundancy of the sigmoid and colon. In other words, this condition of the elementary back must take its position among the local infections and must be treated accordingly.

Fig. 7.—Sigmoidal loop with ptosic colon but with stomach in relatively normal position (Trendelenburg position).

Fig. 8.—Figure-of-eight sigmoid (redundant) complicated with acute angulation of the colon at the hepatic flexure (recumbent position).

TREATMENT OF REDUNDANT SIGMOID

The question of treatment is to be solved only in recognition of the demonstrated pathology of redundancy and ptosis and in the light of the clinical conditions presented in each individual case. Thus, if the obstipation is not difficult to overcome, or at least to mitigate, certain lines of palliative treatment may be adopted with temporary advantage, but, of course, with no hope or prospect of ultimate cure. If, on the other hand, the obstipation is persistent and, especially, if either local or systemic sequelae, or both, have developed, nothing short of surgical intervention can bring the slightest hope of permanent relief. This brings us to the contemplation of (1) palliative and (2) curative treatment.

1. Palliative treatment may be relied on, in a certain limited number of cases, to afford a *modus vivendi* without, however, offering any prospect of eliminating the underlying or causative condition. In many cases I have been able to make patients very comfortable for a considerable length of time, and without operation by a course somewhat as follows:

Postural Treatment with Massage.—The patient is taught to utilize the Trendelenburg posture. This is done by means of an extemporized inclined plane, ordinarily an ironing-board, one end of which is placed on the side of the bed and other end on the floor. The patient lies on this, heels up and head down, the board coming to the nape of the neck. While in this position, which is maintained for a period of from ten to fifteen minutes, two or three times a day, the patient herself massages her abdomen by drawing the viscera toward the diaphragm. It would seem that the downward displacement of certain abdominal organs is a penalty that we pay for assuming the upright posture and that to stand on our heads, or as nearly on our heads as possible, is the logical correction. In carrying out this practice, I have discovered that it has another incidental advantage, which is, that by gravity it forces the nutrition of the brain and higher centers. When these centers have been depressed, almost exhausted, by pain, both physical and mental, and by toxins transported from the intestines to the brain through the circulation, the condition that they present is essentially that of anemia. This condition is best relieved by having the blood forced into the brain in maximum quantity compatible with health—a principle which may be utilized with advantage in certain neurotic and neuropsychic states that may occur quite independently of the visceral complications that I have been discussing.

Dietetic and Medicinal Treatment.—The diet is looked after by giving laxative foods, especially the grits and fruits. The patient is taught to drink copious draughts of very hot water, from a pint to a quart, immediately on arising, if necessary, repeating the libation before each succeeding meal. This is often all that is required to secure free action of the bowels. When, however, it proves inefficient, I

add to the water a small quantity of some laxative salt of sodium or magnesium, preferably the former. Vichy water, or the salt made therefrom, may be effectively employed in this way. On general principles, however, the less medicine the better. I am employing the petroleum oils with advantage as a mere lubricant of the intestines. Liquid petrolatum, petrolatum, oil of petroleum and paraffin oil are products belonging to this class, and of about equal efficiency.

Mechanical Treatment.—While the postural treatment—including hydropathic—already mentioned may be considered mechanical, I am using the term in a restrictive sense as applied to external appliances, such as belts and braces. It is obvious, from a moment's glance at the anatomy involved, that no such appliance can be effective in preventing the ptosis of a redundant sigmoid. On the contrary, such an attempt to hold up this segment of the bowel can only result in pushing it farther down in the pelvis. So true is this that, for the relief of such cases, it is important that even the incidental pressure of clothing suspended about the waist should be interdicted. Another phase of mechanical relief is that by enemas, by which the fecal content is softened, the weight of the redundant bowel lessened, and the consequent pressure diminished.

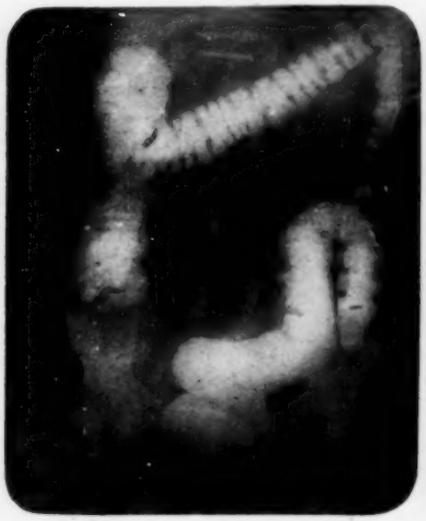

Fig. 9.—Enormous sigmoid loop which was the cause of ovarian dysmenorrhea and other intrapelvic symptoms of pressure (Trendelenburg position).

Fig. 10.—Greatly redundant sigmoid lying chiefly in right side of pelvis (Trendelenburg position).

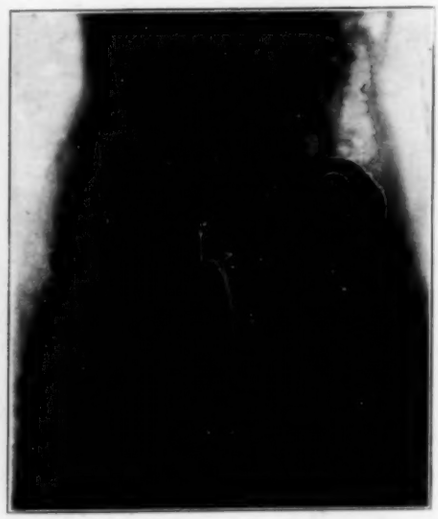

Fig. 11.—Largely redundant sigmoid adherent to anterior abdominal wall (recumbent posture).

2. Contrasted with palliative treatment is curative treatment. While such expedients as posture, massage, diet, medicine and lavage may, in certain cases and for a time, bring a measure of relief, it is obvious that neither all nor any of them can in the least remove the underlying redundancy and the consequent ptosis. In other words, they are mere temporary expedients, the tendency of which is indeed to lower the functional efficiency of the bowel and thus ultimately to aggravate the original ill health of the patient. It is obvious that nothing but surgical intervention can be recognized as having curative significance. But, before considering these measures in detail, it is important again to remember what I have tried to keep constantly to the forefront in this essay, namely, that this condition of the sigmoid is generally associated with a corresponding condition of the colon and that to relieve one without relieving the other is to fail in affording ultimate relief to the patient. With this understanding and addressing myself now exclusively to the sigmoidal state, let me say that the surgical expedients which I have found effective are (*a*) sigmoidopexy, (*b*) ileosigmoidostomy, (*c*) cecosigmoidostomy, and (*d*) resection of the sigmoid, to which may be added, as a measure supplementary to the second procedure, (*e*) colectomy.

It is unnecessary here to give text-book descriptions of these respective procedures. A few incidental observations may, however, be helpful in leading to a selection of the measure to be employed. This, in all instances, should be based on the actual condition as revealed by exploratory incision, and should not be predicated entirely on Roentgen-ray findings. The roentgenogram reveals much that is important, but it does not reveal many conditions that are of determining value in the selection of the surgical measure to be employed. With respect to sigmoidopexy, much has been said in a more or less academic way about its "potential dangers." I have no doubt but that some embarrassing consequences have been experienced from this operation by some operators, but I am equally as sure that such consequences have been the outcome of defective methods employed. Indeed, I have done some secondary operations for the relief of patients who had been victimized by precisely such defective methods. In one case, a little 2-inch incision had been made through a thick wall, and the sigmoid had been drawn over to the median line and there firmly sutured in such wise as to give it a permanent acute angle. In another case, the fixation had not only caused similar angulation, but had failed to control the kinking due to redundancy. The resulting complications, for which I was not responsible, were obviously due to defective methods, as shown by the fact that these cases were completely relieved when the fixation was properly effected. In this connection, it is important to say that it is a defect of method to stitch the sigmoid itself, or any part of it, to the abdominal wall, but that the unkinking should be effected by stitching not the bowel itself, but the

redundant mesosigmoid to the parietal peritoneum. This is better done by employing the Pfannenstiel, or transverse abdominal incision. If carefully done by this method and if the colon, when involved, has been brought under similarly effective control, and if other impediments to fecal circulation do not exist, the results are eminently satisfactory.

I would not, however, leave the impression that I look on fixation procedures as the ones always to be employed, or even as the operations of choice. On the other hand, in all cases in which correction cannot obviously be thus effected, resection of the sigmoid with lateral anastomosis of the ends, or ileosigmoidostomy, or cecosigmoidostomy with or without resection or removal of the large bowel may well be employed.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. EASTMAN, BONIFIELD, MAYO AND REED

DR. M. L. HARRIS, Chicago: The wide-spread study of diseases of the intestinal tract which has taken place recently has led to the recognition of a number of very important facts which are so prominent that they should be crystallized in our minds at this time. The first of these is that while the intestinal tract during its embryologic and postnatal evolution follows a normal type, yet there is no fixed end stage of this evolution. During the evolution a number of membranes are formed which are but temporary and which as a rule disappear, yet many of these are found to persist after birth. These should not be called pathologic in the sense that they give rise to disturbed function, because they do not, unless they directly cause mechanical obstruction. The next fact is that when we have a disturbance in function due to the presence of these bands of membrane which are found congenitally or to those developing subsequently, the changes are invariably due to changes in the intestinal contents, chemical in nature, bacteriologic or dietetic and metabolic in origin. These conditions arising within the intestines cause the changes in the membranes and bands which then produce the symptoms noted. That gravity plays little or no part in the movement of the intestinal contents or in the emptying of the stomach or colon we discovered long ago in our operations on the stomach. The emptying of these parts is purely physiologic and not a physical process. Any surgical operation done on these patients must be directed to some definite and specific condition mechanical in its nature if any benefit is to be derived from that surgical operation *per se*, and after the mechanical condition has been corrected by proper surgical procedure that patient becomes a medical case and must be followed up by medical treatment, dietetic and other means to change the chemical nature of the intestinal contents, whether of bacterial or metabolic origin. If these cases are not so followed up we may expect relapse with redevelopment of these so-called membranes. The next fact is that while there may be certain physical differences in location and conformation of the intestinal tract, it is a physiologic entity; the entire tract is under a governing and regulating mechanism, and the disturbance of one part must cause disturbance in another. It is useless to disregard the intestinal tract as a physiologic entity in these cases.

DR. JOSEPH SAILER, Philadelphia: As an internist my opportunity to study cases of derangement of the large intestines as a rule antedates that of the surgeon. These cases come to the internist in all stages of the disease. If he has wit enough to discover where the trouble is located and persuasion enough to induce the patient to submit to surgical interference he has fulfilled his entire function until, as sometimes happens, at a later date the patient returns for relief from the old symptoms or new ones which may have developed. I urge a greater cooperation between the medical man and the surgeon. I believe it will be generally conceded that abdominal conditions, above all, are the most difficult correctly to diagnose, and, moreover, that in no class of surgery is the importance of preliminary diagnosis greater. Yet it has been my fate on various occasions to have the surgeon respond to what he probably considered my more or less impertinent attempt to explain my conception of the morbid condition, by the statement that he would see what he found after the abdomen had been opened. The best results will be obtained, however, not when the surgeon accepts the medical man's diagnosis but when he is sufficiently familiar with diagnosis to discuss his cases intelligently with his colleague. Three important conditions are: The importance of considering the possibility of some disturbance in the cecum in all cases of supposed chronic appendicitis. Among these disturbances cecum mobile is not an exceedingly rare condition. In many cases removal of a so-called chronically diseased appendix has failed to relieve the symptoms from which the patients suffer. In one such case, anchoring the cecum secured a restoration to health. 2. Those cases in which there is partial obstruction of the large bowel. This also is, I believe, more common than is supposed and fairly difficult to diagnose. The problem of treatment is complicated by the fact that the patient is rarely willing to submit to an operation and curiously enough it is often difficult to persuade the surgeon to undertake it. Why I do not know, for the relief that an appropriate operation affords is sometimes extraordinary. 3. So-called gastro-intestinal intoxication. There is, unquestionably, a group of more or less vague symptoms associated with chronic, partial invalidism concerning whose cause we are at present at fault. They have been called gout, neurasthenia, lithemia, gastro-intestinal intoxication, disturbance of the ductless glands, sympatheticotonia and vagotonia and of late years ascribed to early disturbance of the sexual psyche. The variety of etiology indicates that an actual demonstrable cause has not as yet been discovered. Therefore, all surgical measures which have to do with combating these cases are necessarily measures undertaken on the basis of an as yet unproved hypothesis. I am inclined to believe that some of the brilliant results of colectomy or short circuiting are due to relief of colonic stasis based on an anatomic factor and not the elimination of an intestinal toxemia.

DR. JOHN H. GIBBON, Philadelphia: The question of colonic stasis has not been settled. We do not know what causes the conditions we encounter when we operate in these cases. I believe also that we do not know—we may think we know—that the symptoms are the result of the conditions which we find. There are few here who cannot remember that patients who suffered very much as these patients we now describe as suffering from colonic stasis, were relieved by other means. The fixing of floating kidneys cured many; the removal of the appendix cured many; the removal of the coccyx has cured many. Now to pass out of the realm of surgery, there are other means less radical that have cured many; mechanical, mental and religious treatment. I believe, then, that colonic surgery has not yet found its proper place. Mr. Lane has forged ahead into a new field fired with the enthusiasm of a pioneer. He has developed a wonderful technic, but I feel that those who attempt to follow him will sooner or later have to make some apology, because Mr. Lane —and I think no more honest man lives than Mr. Lane—in discussing one of his cases of colectomy in which the patient suffered from obstruction due to adhesions, said "Why, if it were not for the postoperative adhesions and obstruction which these patients develop, this operation would be as simple as circumcision." Now it is not as simple as circumcision, and it is our business to recognize the fact that it is not. We have heard of the wonderful results obtained in properly selected cases; the difficult thing is to select the case that will give the good result. A great many things in surgery are easily done that ought not to be done. We have heard of the good results of ileosigmoidostomy. I wish we might hear of all the ileosigmoidostomies that have been done in America—that we might consider why there have been bad results and failures. Let us be honest; we are trying to get to the bottom of this. Two small boys were looking at the poster of a circus and they saw an elephant standing on his trunk, and one boy said, "Do you

believe an elephant can stand on his trunk?" "Yes," said the other boy, "there ain't nothing an 'elphant' can't do." Now, gentlemen, there are very few things that a surgeon can't do in an abdomen, but just as it is disastrous for the elephant to try to stand on his trunk, so I think it is disastrous very often, certainly for the inexperienced, to attempt to do what is possible, but what is plainly not indicated. Now I hope that those of us who undertake colonic surgery, will beforehand, read the papers of Dr. Eastman and Dr. Mayo presented here to-day. Of course, I am speaking from the clinical, not the scientific, point of view. If we follow the paper Dr. Eastman gives us we shall see that the last word has not been written. He has shown us that we can make a big stoma in the cecum and attach the cecum to the rectum and that still the colon will not drain. Then how on earth can this operation result in the wonderful cures that we hear about?

DR. JOHN B. DEAVER, Philadelphia: I wish to question the etiology, the cause and effect. No doubt some of these cases of so-called intestinal auto-intoxication are prenatal but not all. I believe the majority are due to pathologic conditions, and we surgeons must determine that pathology. I believe that the surgeon's chief mission is to remove pathologic conditions. The oftener I open an abdomen the less familiar I am with the indications for ileosigmoidostomy or colectomy. Doctors frequently ask me how often I do these operations, and I say, rarely. I believe many a person walks the streets with a peritonitis. It does not give sufficient distress to call the doctor. I have many times seen a driver of a cart come into the German Hospital with an appendiceal abscess and ask for something because he had a little pain, but he had been working just the same. If a man can work with an abscess of that kind the same can be said of a man with a mild grade of peritonitis. After organization of the inflammatory exudate is complete we have bands and membranes, but in the majority of these instances I believe there has been a previous inflammation. The Roentgen ray I think more often misleads the surgeon in connection with the intestinal canal, unless the work is done by a most expert man. I do not operate on Roentgen-ray findings alone. They may influence me to open an abdomen, but If I do not find the lesion I close the abdomen. I think on general principles it is a vicious practice to stitch fast organs which are movable, which too often leaves the last state worse than the first. I have the highest regard for Mr. Lane—all of us who know him love him; he has a charming personality and is a master mechanician; but I do not believe all that he teaches, and I am fearful that his teaching has a bad influence on the younger members of the profession. I would raise my voice with others against too much operating under these conditions. Dr. Janeway, one of the master diagnosticians of the world, was asked to discuss the subject. He said, "Gentlemen, I never made a diagnosis of intestinal auto-intoxication in my life."

DR. HUGO O. PANTZER, Indianapolis: I would agree with the statement of Dr. Mayo that we may not expect in the life of one individual to be able to divert the racial course pursued through thousands of years, without having economic disturbances to follow in that individual. Constipation, no doubt, is basic to many of the pericolic adhesions found in these cases. The scientific and convincing work of Dr. Hertzler is in pertinent evidence. There is no more potent factor in producing habitual constipation than the misconstruction, by profession and laity alike, of the edict that the bowels shall move daily, to mean that one bowel movement daily is sufficient. There is not an animal, except man, but defecates regularly with every taking of food and several times more daily. It is the inconvenience of complying with this natural demand that has in turn led the human being to formulate the quasi-statutory edict to Nature that she shall move at one set hour daily and no more. Every individual who does not defecate three or more times daily, must in our sense, be regarded as constipated. Once have applied the natural rule to the human family and with one fell stroke you have eliminated the most potent cause of colic stasis! And, also, you have added to each individual life a daily increase of freshness and vigor and endurance, and an increase of years, which will amount to anywhere from 10 to 25 per cent. for each individual. A phase of pericecal pathology commonly not adequately considered is that whenever the appendix is found in retrocecal position there exists not only more or less contraction of the appendix and adjacent ileum, but also a contraction, adhesion and upward displacement of the posterior wall of the cecum. The filling of the cecum under these conditions soon leads to sagging of the entire anterior portion of the cecum. This makes it impossible for the circular muscular fibers to exert themselves normally. The circular muscular fibers which posteriorly are high and fixed, in their anterior portion are often several inches lower, and no longer opposite, and their function is more or less annulled. The fullest release of the postcecal and pericecal adhesions and membranes alone will suffice to give relief here. Commonly such relief is not considered by the average operator. In my estimation, the condition is commonly mistaken for the prolapse of the entire cecum. Where there is one real cecal prolapse of Wilms, there are twenty-five of the anterior wall. None but he who carefully dissects the adhesions and membranes can establish the truth of this observation. This has been my practice for over twenty years, as my case records can establish, and I wish here to state emphatically that I as yet have not found a case in which short-circuiting of the bowel seemed necessary or warrantable.

DR. ROSALIE SLAUGHTER MORTON, New York City: It seems to me as a gynecologist that the greatest advance to be made in the next few years will come from a consideration of the pelvic contents in relation to intestinal conditions. Congestion causing dysmenorrhea, which has previously been difficult to treat satisfactorily, has been often due to intestinal stasis and ptosis and to auto-intoxication producing anemia, lowered muscle and nerve tone. Displacements are often caused by pressure of the sigmoid when it has an abnormally long mesentery, and in many cases we find the uterus displaced downward from the constant pressure of the prolapsed cecum or transverse colon. One of the difficulties in diagnosing dysmenorrhea due to congestion is the variability which results from varying conditions of the intestinal contents, and when examined under ether there are no evidences of congestion because the preparation for the anesthetic necessitates the giving of a cathartic and enema which thoroughly evacuates the bowel, producing temporarily a condition which is not the usual one of the patient. In some necropsies we look in vain for the cause of baffling symptoms, because in the moment of death the venous capillaries empty and evidence of congestion disappears. Valuable aid in diagnosis results from the use of bismuth by mouth and in enemas and roentgenograms made every day for a week with the patient in a different position, the patient not remaining in the hospital under abnormal conditions but continuing active in her ordinary occupation. The importance of being able to examine the abdomen thoroughly at the time of a gynecologic operation to see whether there are any intestinal adhesions or angulations, led me to devise a simple instrument, a one-piece abdominal speculum. By introducing the blade through the ordinary low 2 inch incision one can survey the entire abdomen. The handle allows room for the abdominal wall and dressings and keeps the assistant's hand out of the way. By lifting the instrument one can easily find the appendix if it is in its normal position, and if not, by gently turning the wall-lifter, it may be located as high as the hepatic flexure which can easily be seen as well as the gall-bladder. By further turning, the transverse colon, stomach, splenic flexure, descending colon, sigmoid and various portions of the ileum may be inspected easily and without handling. Any lesions of the gall-bladder or constricting bands may be corrected under the present anesthesia, ptosis may be noted for correction, by raising the foot of the bed or other postural treatment during convalescence, thus avoiding complications which often have more effect on efficiency than the gynecologic conditions themselves, as the latter may, in many instances, be considered secondary.

DR. J. W. LONG, Greensboro, N. C.: The pathogenesis of this subject as well as the proper management of these cases may be best understood by remembering the embryology

of the alimentary canal. At one time during fetal evolution, most of the intestine, the whole alimentary canal, in fact, is in the enlarged umbilical cord outside of the abdominal cavity. When the colon returns to the abdominal cavity the fetal colon is situated in the left side of the abdomen. As the alimentary tract develops the cecal head is projected, as it were, across the celom, beneath the stomach and liver. Now, while this evolution is going on, there is another important process, namely, fusion and absorption of certain layers of peritoneum taking place. Should fusion of the peritoneum in this region of the abdomen occur too early, the cecum is caught as it rests beneath the liver and we have the high cecum and an undescended colon. This explains those rare cases in which the appendix is found in the kidney fossa above and behind the colon. On the other hand, should fusion fail to take place in whole or in part, the cecum descends below its normal situation in the iliac fossa and may even be found in the pelvis lying on the bladder. As a result of the failure of fusion to anchor the cecum in its normal location we have cecum mobile, dilated cecum, ptosis, thinned walls, infection, and local coloperitonitis, with the formation of pseudoperitoneal cauls of the colon, or Jackson's membrane, Lane's kinks, and intestinal stasis. In other words embrology helps to explain pathology.

DR. FRANK C. YEOMANS, New York: On Feb. 10, 1911, at the New York Polyclinic Hospital I operated on a woman, aged 48, for constipation due to stricture of the descending colon. I found the sigmoid very large, at least 3 inches in diameter and 24 inches long. I united the cecum to the sigmoid by a broad lateral anastomosis thus deliberately performing a cecosigmoidostomy. The patient has been perfectly well since the operation. I reported this case with two others in the *American Journal of Surgery*, January, 1913, with the conclusion that when practicable, that is, when the cecum and the sigmoid can be approximated without undue tension, cecosigmoidostomy (*a*) is a safe operation, easy of execution; (*b*) establishes drainage of the entire colon, there being no blind ends left for collection of feces, fermentation and intoxication, the *bête noire* of ileosigmoidostomy; (*c*) observes the surgical principle of draining the colon at its most dependent points, a principle correct both in theory and in practice; (*d*) anchors and drains the cecum mobile of Wilms; (*e*) anchors and drains chronic volvulus of the sigmoid or a giant sigmoid; (*f*) cures permanently constipation due to mechanical obstruction (obstipation) at any point in the colon from cecum to apex of sigmoid. In THE JOURNAL A.M.A., March 7, 1914, Dr. Eastman in an article entitled, "An Anatomic and Physiologic Method of Short-Circuiting the Colon" advises that "the caput coli be anastomosed freely to the rectum at the lowest point possible without traction." I presume that he had not looked up the literature or failed to notice my earlier article, published fourteen months before, on "Ceco-Sigmoidostomy; an Operation for Short-Circuiting the Colon." Now Dr. Eastman terms this operation caput coli-rectum anastomosis, but Dr. Reed, correctly I think, calls it cecosigmoidostomy. The rectum proper begins opposite the third sacral vertebra. I have measured carefully the various portions of the colon and observed their respective positions in 100 cadavers to determine the proportion of cases in which anastomosis is feasible. I found that, anatomically, the cecum can very seldom be approximated to the rectum proper, hence, cecorectostomy is not practicable. The cecum and sigmoid can be approximated, however, in over 70 per cent. of cases. Of course, the anastomosis is made at the lowest point possible on the sigmoid without undue traction. I wish to draw attention to the fact that caput coli-rectum anastomosis is but an impracticable attempt to do a low cecosigmoidostomy. I described a successful method of performing cecosigmoidostomy one and one-half years ago.

DR. ROBERT T. MORRIS, New York: To think of this subject as a whole we must think at a target. The authors this morning have given us the opportunity. In thinking at a target we must choose a bull's eye fact: the fact that these patients belong to a class which needed to have its ancestry short-circuited by one or two generations. That means that the surgeon is nothing but a therapeutic resource. These cases are medical first, last and all the time, and we are not to think that we are dealing with the class of patients whose trouble is to be ended by the surgeon. The dog through bad habits of his master has arrived at his master's culture. Consequently he has the same stasis, the same arthritides that the rest of us have. We are dealing with about the same diseases in the dog as in man, among those which are frequently colonic in origin. Dr. Eastman spoke of the *bacillus adhesiformis*. This would mean a bacillus in the shape of an adhesion. There is no such bacillus. In many of these cases we see striking results, from operation sometimes, but it is for the good diagnostician to work out the class of case in which the operation of short-circuiting should be performed. For instance, I had a patient with spasmodic asthma who had not lain down for four years. Whenever the colon was flushed the attacks of asthma were very much lessened. On the basis of this reasoning and the facts elicited in the laboratory, I short-circuited the bowel and the patient has not had any spasmodic asthma since.

DR. THOMAS S. CULLEN, Baltimore: In a study of many subperitoneal pedunculated myomata I have been greatly interested in following the behavior of the omentum, in those cases in which it became adherent to the myoma. As the pedicle of the myoma became more attenuated and the blood-supply from the uterus diminished the omentum would gradually make up the deficiency by sending in vessels to the now partially parasitic tumor. The omental fat would gradually disappear until finally the omentum was represented only as a bunch of large vessels which passed from the vicinity of the transverse colon to the tumor. Nearly twenty years ago Dr. Preston, of Hampsted, Md., saw a patient suffering, as he thought, from gall-stones. She went into a state of collapse and he diagnosed rupture of the gall-bladder. The consultant laughed at him and said it could not be so. She recovered, and fifteen years later when I opened the abdomen on account of further gall-bladder symptoms I at once saw six or eight typical gall-stones lying outside the gall-bladder covered by a transparent layer of adhesions. They were as clearly seen as is a glacé nut through the coating of candy. Nature had sealed them over perfectly without leaving any tags of adhesions adherent to surrounding structures. Dr. Marcy speaks of the increased meat-eating in England and the coincident increase of cancer. I recently asked Dr. Hirst of the Severance Hospital, Korea, what was the most common disease in Korea. He said they had more empyemas than anything else. I said "How about appendicitis?" He said "We have had five cases in ten years." They have a large hospital where Dr. O. R. Avison and he are doing the surgery. Every one of these five cases of appendicitis was in a foreigner, so that appendicitis in Korea is a negligible quantity, and as you know, the Koreans have little or no meat to eat.

DR. JEROME M. LYNCH, New York: I hardly ever attend a meeting of any surgical society that some one or two men do not condemn Mr. Lane. If the rule laid down by Mr. Lane is followed there will not be so much occasion to criticize his method. These cases have been treated by physicians and by surgeons and what is the result? The patients have gone to osteopaths, Christian Scientists and a lot of other quacks. If you would short-circuit these cases you would not have the unsatisfactory results that are reported. Every one of ten patients we have so operated on has gained in weight. In a girl 18 years of age with hemorrhagic colitis, there was a gain of 30 pounds. If you put the patient on a meat diet the stool will be liquid when it reaches the cecum. In over 200 experiments we have demonstrated this. If you give a carbohydrate diet it becomes solid. In a great many cases solid feces come from the ileac opening; often the ileum takes on the function of the colon and the feces are thrown into the colon and cannot be removed by flushing or any other means than short-circuiting.

DR. HENRY O. MARCY, Boston: With reference to the Roentgen ray, several of my friends in Boston made a careful study of a large number of normal subjects and found the situation of the intestines in no two cases alike. In one of the hospitals in Boston the surgeons thought they found a stone in the kidney and asked the very distinguished expert to make

the roentgenogram. There, perfectly distinct, was the object, round, well defined and in the location of the kidney believed to be the organ discovered. They operated, but no stone was found. When the expert operator was asked to explain the picture he said, "I thought surely you would know that was the button on his drawers." It depends very largely on "the man behind the gun." I recall a discussion some years ago in the Section on Surgery when a Texan said, "Operations for appendicitis are often resorted to when not required. First give sweet oil in large doses" and the young surgeons in the audience showed their disapproval in a very marked manner. He said in closing one thing that is worth remembering—"it will grease the intestines." Then I told this illustrative story: Patrick had a pain in his right side; the doctor told him to go to the hospital and have his appendix removed, and to take a hundred dollars with him, it would cost that. On the way to the hospital he met a friend. "Oh, Pat," said the friend, "them fellows are always wanting to operate; just go to the apothecary and get twenty-five cents worth of castor oil, and I will come in in the morning and see how you are." In the morning, to his friend's inquiry Pat replied, "Jimmie, financially, I am $99.75 ahead, physically I am running behind."

Dr. J. R. Eastman, Indianapolis: I am not the author of the term *Bacillus adhaesiformis* very justly objected to by Dr. Morris. I referred in my paper to a bacillus which I said Dr. Bassler, an associate of Dr. Morris, thus designated. Dr. Yeomans said that for anatomic reasons, it is impossible to anastomose the caput coli and the rectum. That is true under anatomic conditions. We do not operate, however, under normal conditions. The operation is indicated only in severe ptosis and in serious cases of colonic stasis. It requires perhaps a reckless degree of hardihood for me to differ with a man of the experience of Dr. Reed, but I must take issue with him as to one of his statements. I think the internist would grow very excited over his remark that no case of colon stasis of serious character can ever be permanently cured by non-surgical means. In a certain percentage of cases we can by the use of simple means like exercise and the vegetarian diet with petrolatum to anoint and lubricate the intestine, relieve the colitis, and when the colitis is relieved the pericolitis will likely also be relieved and consequently the stasis is overcome. It is not simply a matter of lubricating the intestine but of correcting the colitis which frequently causes ptosis and stasis and pericolonic adhesions of all kinds. It can hardly be said at this time that every serious case of stasis is a case for surgery.

Dr. Charles L. Bonifield, Cincinnati: I cannot agree with Dr. Deaver that the Roentgen ray is of no account. He must have a poor roentgenoscopist. The German language is of no account to one who cannot read it. The roentgenogram can be depended on by the one who can read it, and if a man makes a series taking about four a day it throws much light on these cases of ptosis. It is particularly valuable in showing how rapidly the small intestine, the cecum and the sigmoid flexure empty themselves. As I remarked before there are degrees of this condition. The cases in which I believe we must operate are those in which the disease has progressed until the large intestine has elongated, and in which its convolutions are scarcely discernible. My old teacher used, in constipation, to prescribe full doses of ergot, and I have found that is a very good drug in the early stages of relaxation of the bowel.

Dr. William J. Mayo, Rochester, Minn.: Surgery of the colon is still in the stage of case-reporting. We have to go through that period. We must be wary of the promoter in surgery as we are of one who tries to sell an oil well. Promoters are as necessary as a drag behind a wagon to keep it from going too fast; but, we must beware of them, because if we accept their teachings, we are going to overdo things. There is something in the question of the large bowel. It may be too long and too big. If we could only say to certain patients that they have too much bowel and that if they continue to live on a meat diet they will not live as long as on a vegetable diet, because Nature has created them vegetable feeders, we might do good if we were sure it were true. If some one would take up the question of our ability to handle various foods much trouble might be avoided. It has been shown that the ordinary man takes two or three times as much meat as he can efficiently care for. Consequently, putrefaction and stasis may occur in the large bowel. Over 60 per cent. of all water we take is absorbed by the large bowel. The danger to all the human family from their inability to absorb all fluids taken is from the development of acid bacteria. The mouth should be alkaline, but when we have an infection in it, the acid-borne bacteria may be carried down from the mouth, and become, possibly, a factor in gastric ulcer and duodenal ulcer. The question is not one of local development but of bacterial infection, the bacteria of chronic and acute conditions going to the liver through the portal circulation.

Dr. C. A. L. Reed, Cincinnati: One of the speakers, a Philadelphia man, said that his opportunity to study this question was generally postoperative. Dr. Deaver also of Philadelphia, has informed us that the last state of these cases was generally worse than the first. The cumulative evidence forces me to conclude that gastro-intestinal surgery in and about Philadelphia must be in a very unsatisfactory state. Let me suggest to those men that they may with profit journey to Cincinnati, where they will find a hospital clinic in which such results are not demonstrable, but in which we will show a primary mortality that is practically nil, with an ultimate functional recovery of better than 85 per cent. Dr. Gibbon alluded to the fact that the profession is very much given to fads. I believe, in a sense, this is true. History, however, will show that every distinct advance in surgical progress has come by virtue of the residuum of truth which has come out of a surgical fad. Therefore, we may look forward with confidence to the ultimate results of this surgery, which is to-day more or less developmental, and as Dr. Mayo said, is yet in the case-reporting stage. Dr. Morris has stated that the rôle of the surgeon is a therapeutic one. If, by this expression, he means helpful or ameliorative, I do not know that any other attitude was ever assumed by the surgeon. He has stated, however, that the condition of these patients is not ended by what the surgeon does. As a sweeping fact, this is a totally unwarranted statement. These patients, many of them, the majority of them, in my hands more than 85 per cent. of them, recover, stay well, and by the results demonstrate the law of cause and effect between the colonic or sigmoidal states, or other intestinal conditions and the general ill health. I do not care one rap about the minutiae of intermediate pathology, although I do not wish to discourage my laboratory friends in their efforts to find out the whole truth and all of its details, however infiinitesimal and unimportant. I am afraid Dr. Eastman was just a little inattentive to my exact phraseology. I did not state that intestinal stasis was never relieved except by surgical means. On the contrary, I know that I often relieve it without operative means. What I did say was that, in intestinal redundancy and intestinal ptosis, cure was never secured by other than surgical means. I stand distinctly by that assertion. An elongated, redundant colon and a sigmoid in similar condition were never made less by any medical treatment. An elongated, redundant mesosigmoid was never made shorter except by appropriate surgery. It is impossible. I would just as soon attempt to reduce a dislocated elbow with a dose of Epsom salts as try to overcome one of these conditions I have just described by any sort of medicine.

Obligations of Health.—We are to feel that health is fundamental and inalienable, that it imposes sacred obligations, calls us to willing service, becomes the object of our constant concern, makes us ashamed of inefficiency, stupidity and graft, because they mean disease, raises us to a new level of brotherhood, of citizenship, of sonship to a common Father and of joint parental responsibility to the heritors of a racial stock whose full inheritance consists, not merely of the germ plasm of a fortuitous set of parents, but of all that we jointly bestow upon the generation to which they belong.—Edward T. Devine in the *Survey*.

A STATISTICAL STUDY OF SYPHILIS

THE RELATION OF ITS SYMPTOMS TO SUBSEQUENT TABES DORSALIS OR GENERAL PARALYSIS *

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This study has been prompted by the gradually growing conviction that the men and women who suffer most from recurrent cutaneous syphilis are not those who become tabetics and paretics, and conversely that the victims of tabes dorsalis and general paralysis are not referred to the skin clinic for the treatment of recurrent or persistent late cutaneous syphilis.

With the steady and insistent growth of this feeling the literature has been consulted from time to time, but with disappointingly negative results as to statements based on actual figures, for the authorities on nervous disorders are, as a rule, strangely silent on this phase of the question and the writers on skin diseases do not often concern themselves with the nervous sequelae of the disease. There are, however, a few exceptions to this rule.

Collins[1] says that "it would be interesting and extremely useful to know what proportion of syphilitics develop nervous diseases, but so far no statistics on this subject have been at all convincing."

Jelliffe,[2] in considering so-called parasyphilis, "relies with considerable confidence on a completely negative history of syphilis."

Dercum[3] states that "every physician of experience knows that in parasyphilis the history of the original infection, i. e., the primary lesion, is often difficult to elicit, often denied and often uncertain. Particularly is this true of paresis; it is almost equally true of tabes. Scars of primaries are rare, histories of secondaries commonly wanting. Does this not suggest a possible difference in character of infection. A number of men were syphilized by one woman and all developed paresis (Morel, Lavallée and Bellières); five men all infected by the same glass-blower became tabetic or paretic (Brosius). Nonne, Marie, Bernhard and Erb have related similar experiences. Truly gummatous lesions in paresis are excessively rare."

Nonne[4] believes that the question as to "who will become paralytic or tabetic has not been settled," and that "there is a special genus of spirochete which has especial affinity for the nervous system."

Ravaut[5] remarks that "even in very extensive malignant precocious syphilis the spinal fluid is most often negative."

Jeanselme[6] notes that "in the natives of southeastern Asia where malignant cutaneous syphilis is so prevalent one seldom sees tabes or general paralysis."

Pollitzer's[7] observations extending over many years tend to prove that "the mild cases — those without skin lesions — give us most of our cases of late syphilis of the nervous system."

J. Allen Hoffman[8] draws attention to the frequency in China of primary, secondary and tertiary syphilis and to the extreme infrequency of parasyphilitic conditions, and asks whether syphilis alone is responsible for dementia paralytica or whether other factors such as debauched living or a different oriental strain of spirochete tend to produce parasyphilis.

Finally, Dr. E. D. Bond[9] writes me that in the records of 1,625 necropsies at the Massachusetts State Hospital for the Insane at Danvers he can find mention of only four instances of cutaneous syphilitic lesions and these were all of an early or late secondary character.

From these meager quotations it would seem that the conviction stated at the beginning of this paper was true, namely, that those who suffer most from cutaneous syphilis are spared the fatal nervous consequences of the disease and, conversely, that the victims of syphilis of the brain and cord perhaps unfortunately escape the earlier cutaneous accidents of the malady. Nevertheless, it seemed wiser to base these beliefs on fact rather than on hearsay or the general statements of other writers and so these statistical studies were undertaken.

From Sept. 1, 1904, when the modern record system was established in the outpatient department of the Massachusetts General Hospital, to April 1, 1914, the diagnosis of syphilis has been made in 5,453 individuals, exclusive of 798 cases of tabes dorsalis and 202 examples of general paralysis. The resulting facts enumerated in this paper are based on the study of the first 1,016 cases of syphilis, the last 500 of tabes dorsalis and the first 178 examples of general paralysis. In devoting this rather considerable amount of time to the study of these numerous records it seemed rather a waste of energy to limit oneself to the one mooted point, and so other and perhaps valuable data are recorded in the subjoined tables and statements.

CUTANEOUS SYPHILIS

Sex. — There were 583 males and 433 females recorded, a sex proportion of approximately 4 to 3.

Age of Patients at First Visit.—In the first decade of life there were 4; in the second 71; in the third 390; in the fourth 309; in the fifth 147; in the sixth 52; in the seventh 18, and in the eighth 1. Thus it is seen that between the twentieth and thirty-ninth year of life 699 persons, or nearly 69 per cent. of the whole number first sought relief for their syphilitic infection.

Hereditary Syphilis.—Among these 1,016 patients there were only 24 hereditarily affected.

Age when First Symptoms Developed. — None of these children showed manifestations of their disease at birth. The earliest symptoms were observed in one baby 2 weeks old; one 4 weeks; one 7 weeks; one 2 months; five 3 months; two 4 months; two 5 months; two 7 months; two 1 year; one 4 years, and one each from the tenth to the fourteenth year of life.

STAGE OF THE DISEASE

The primary lesion of syphilis was found in 292 persons; 505 patients presented themselves in the secondary period of the disease and 574 men and women were treated for the late cutaneous symptoms.

* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* The papers of Drs. White, Hazen and Nichols form a portion of a symposium on syphilis read in the Section on Dermatology. The remainder of the symposium and the discussion will appear next week.

* From the Skin Department of the Massachusetts General Hospital.

1. Collins: Syphilis and the Nervous System, THE JOURNAL A. M. A., Sept. 13, 1913, p. 863.
2. Jelliffe: Treatment of Nervous and Mental Diseases, White and Jelliffe, Philadelphia, Lea & Febiger, 1913, ii, 304.
3. Dercum: The Clinical Forms Presented by Nervous Syphilis, New York Med. Jour., Oct. 18, 1913.
4. Nonne: Eighty-Fifth Congr. German Society of Natural Scientists,
5. Ravaut: Rev. mens. de méd. int. et de thérap., 1911, iii, 5.
6. Jeanselme: Bull. Soc. franç. de dermat. et syph., 1913, ii, 129.
7. Pollitzer: Post-Graduate, August, 1913, p. 729.
8. Hoffman: China Med. Jour., November, 1913, p. 369, quoted by Reed; Boston Med. and Surg. Jour., 1914, clxx, 572.
9. Bond: Personal letter.

THE PRIMARY SYMPTOM

As stated above, the initial sore was recorded in only 292 patients, a percentage just under 58 of the persons seen in the primary or secondary stages of the disease. Of this number 239 were in men and 53 in women, a percentage respectively of 47 and 10. These low proportions, extraordinarily meager in the women, rather substantiate my previously formed opinion in this regard. They are in all probability misleading, however, for, as cited above, they include only those primary lesions actually seen and not those possibly hidden away in the urethral, rectal, vaginal or uterine passages. Examinations of these obscure mucous surfaces were not made unless symptoms demanded them. Thus many hard chancres have undoubtedly not been recorded in these computations, but nevertheless, these striking figures decidedly emphasize the fact that we must not depend on the presence of the initial lesion in making our diagnosis of syphilis in hospital ambulants.

Among these 292 chancres there were 27 extragenital, a rather unexpected percentage of 9. They were found on the lips in 19 cases, on the nipple twice, and on the tonsil, tongue, chin, eyebrows, cheek and finger in one instance each.

EARLY SECONDARY SYMPTOMS

It appears to all of us who come in contact with syphilis that there is a primary stage of the disease which is exact and definite in its symptoms when present, but that when this early period is passed then conditions arise irregularly. The typical roseola, mucous plaque and pharyngitis may develop according to precedent, accompanied or not by the less frequent headache, iritis, alopecia and condyloma, or all of these expected phenomena may be omitted and the patient may first be made aware of his infection by malignant precocious lesions of the skin or by some serious nerve involvement. Or again the usual order of events may be quite topsy-turvy and we may find mucous plaques, tonsillitis and even a roseola many years after the original infection.

Therefore in the subsequent paragraphs there will be no exact hard-and-fast rules observed in the consideration of the later manifestations of the disease. It must be borne in mind that in many instances the histories of these patients extend over many years and thus carry them at times from the beginning to the end of the disease, and also, in weighing these figures, let us remember that they concern men and women in the approximate proportion of four to three.

Cutaneous Eruption.—This term includes macular, papular and pustular lesions, and these phenomena were observed in 269 males and in 156 females, an approximate ratio of 10 to 9.

Mucous Plaques.—These patches were found in 158 males and in 88 females. Here the disparity of the figures is striking, the proportion being about 7 to 4; but we should perhaps expect this result considering the greater masculine use of tobacco and larger liability to trauma.

Pharyngitis and Tonsillitis.—Of males 107 were affected against 86 females, about 9 to 7.

Iritis.—Important eye symptoms were recorded in 15 men or boys and in 10 women or girls, a ratio of 3 to 2.

Condylomata.—This type of lesion was recorded an almost equal number of times in the two sexes, 22 in males and 19 in females. This relative preponderance in women is to be explained presumably by the presence of the vulva which affords with the anus a second favorable nidus for secondary infection.

Cephalalgia.—Headache was noted in 62 men and in 71 women. This superinvolvement of the feminine meninges (?) in the ratio of practically 6 to 7 is difficult to explain.

Alopecia.—Here the figures are reversed, namely, 34 males and 13 females; nearly 3 to 1. The numbers may not be wholly accurate, for only visible loss of hair was recorded, no systematic effort at epilation being customary in the skin clinic. Again, the relative frequency in the two sexes may be disputed, as a clever woman can partially hide her loss of hair; but on the whole this practice is not so customarily observed in the public clinics as in the private office. Nevertheless, the fact remains that alopecia is not a common phenomenon of syphilis, for in these patients loss of hair was observed in less than 8 per cent. This low percentage is not in accord with popular belief, but it demonstrates graphically my previously conceived conviction.

Leukoderma.—This symptom was recorded in one male and in six females. These figures are conventional. We know that this pigmentary change is a rare symptom and one almost never observed in men.

Pain.—Bone, joint or muscular pain was recorded in 39 men and in 20 females, an apparent proportion of practically two to one. Why this symptom should predominate so largely in the male is not easy of explanation, unless it be that men are more liable to exposure and trauma and take less care of themselves than women.

LATER SYMPTOMS

Papulotubercular Lesions.—These manifestations appeared in 58 males and in 77 females, a proportion relatively and actually greatly preponderant in the latter sex.

Annular and Serpiginous Lesions.—Here again there was a striking dominance in the feminine patients, for this type of eruption was observed in 35 men and in 52 women.

Gummata, Ulcerations, Perforations.—In these destructive manifestations the relative proportion of the sexes was apparently equal, as this type of lesion was observed in 199 males and in 172 females. Nevertheless the actual percentage was again in favor of the women.

Periostitis.—This occurred in 23 males and in 18 females, an actually equal distribution between the sexes.

Leukoplakia.—This showed the well-known distinctive propensity to attack males, only one woman exhibiting this lesion to 13 men.

Other late symptoms appeared in comparatively so few syphilitics that individual deductions would be futile. Dizziness and vertigo were recorded in 11 males and in 11 females; ear symptoms in 8 men and in 9 women; joint affections in 4 men and in 2 women; cerebral signs including hemiplegia and epileptiform convulsions in 6 men and in 2 women, and nerve paralysis in 2 men and in 2 women.

Summarizing, then, these individual sexual propensities of the disease we find that men are more liable to leukoplakia, cerebral symptoms, mucous plaques, alopecia, iritis and pain, while women suffer more

from early and late strictly cutaneous lesions, pharyngitis, condylomata and headache.

Coming now to the main argument of this theme, how many of these 1,016 persons, many of them dating their initial infection many years back, developed tabes dorsalis or general paralysis? Only nine, eight men and one woman. The first man was infected eight years previously and had experienced merely mucous plaques. The second had been syphilitic thirty-four years and had exhibited only pustular lesions of the legs and a perforating ulcer of the foot. The third was inoculated twenty years before and had suffered from ulcerative lesions of the chest, elbow and other portions of the body. The fourth had had apparently no skin symptoms; the fifth, a primary lesion followed by mucous plaques, and tabes eleven years afterward; the sixth, an initial sore without any observed subsequent symptoms until tabes appeared twelve years later. The seventh had had a primary lesion eleven years previously followed only by a roseola and an alopecia. The eighth patient, a woman, had given birth to one dead baby and had suffered general arthralgia and gummata of the forehead. The ninth, a man, and the only general paralytic, was infected thirty-four years previously and had observed no cutaneous symptoms.

Surely these are striking figures, for out of this large number, many of whom were old syphilitics, only eight had become tabetic and one paretic, and of this extraordinarily small group only three had experienced any late cutaneous lesions.

SOCIOLOGIC STATISTICS

From a sociologic point of view it might be interesting to insert here the data obtained from the study of these 1,016 case records as to the value of antisyphilitic treatment as obtained in an outpatient department of a metropolitan hospital. These case histories record the treatment and observation of patients varying from one visit to thirty-five years.

The physicians in the skin department of the Massachusetts General Hospital have endeavored as best they could, when confronted with a new syphilitic patient, to tell him that he has a contagious disease and one which demands and requires long and faithful treatment. The patient has been told verbally just what to do and has been given a printed statement of the details of treatment and has been requested to return on a definite day. This has been our method and our aim. Now let us see what has resulted:

No. Patients	Duration of Treatment	No. Patients	Duration of Treatment
209	1 visit	36	6 years
25	1 week	36	7 years
47	2 weeks	24	8 years
18	3 weeks	20	9 years
56	1 month	10	10 years
46	2 months	6	11 years
41	3 months	2	12 years
24	4 months	3	13 years
17	5 months	4	14 years
30	6 months	9	15 years
8	7 months	3	16 years
11	8 months	1	17 years
10	9 months	4	20 years
7	10 months	1	24 years
1	11 months	3	25 years
74	1 year	1	30 years
99	2 years	1	31 years
54	3 years	1	34 years
35	4 years	1	35 years
38	5 years		

Summarizing these figures we find that 20 per cent. of the patients consulted us but once and only 52 per cent. continued the treatment six months or more. On the other hand, 45 per cent. persevered for one year or more and 38 per cent. for two years or more. These are discouraging facts for us to contemplate, but in reality they are even worse than they appear superficially, for in scrutinizing these case records it is apparent that the majority of the patients who returned for treatment after the lapse of their first year consulted us only when there was an active self-evident lesion and stopped medication after the lesion disappeared. In other words, only a fraction of a half of those syphilized received what the world deems sufficient regular systematic treatment.

What can be done to remedy this evil of the past? The future appears to hold forth a brighter prospect. The vastly increased knowledge among the laity of the possible evils subsequent to the disease, the undoubtedly greater early curative and sterilizing effect of salvarsan and the very valuable "follow-up" work of our present social workers should mean much to eliminate, in the days to come, such a condition of insufficient treatment.

TABES DORSALIS

Five hundred records were studied, those of 427 males and of 73 females, a ratio of nearly 6 to 1.

AGE AT TIME OF DIAGNOSIS

In the third decade of life, that is, between the ages of 20 and 29 inclusive, there were 26 cases; in the fourth 169; in the fifth 213; in the sixth 66; in the seventh 25, and in the eighth 1. In other words between the ages of 30 and 49 we may first expect to make a diagnosis of tabes in 76 per cent. of our cases. In this series the youngest male was 21 years old and dated infection apparently only three months back. The youngest female was 26 and no history of previous syphilis was obtained. The oldest male was 72, and his primary lesion was acquired thirty-eight years previously. The oldest female was 61, and she had suffered from palmar eruptions at various times for twenty years.

INTERIM BETWEEN SYPHILITIC INFECTION AND FIRST SYMPTOMS OF TABES

Syphilis was acknowledged or recorded by the hospital in 226 patients, or 45 per cent. of the cases, and the intervals between the earliest signs of syphilis and of tabes were as follows:

Time Years	No. Patients	Time Years	No. Patients
¼	1	19	6
1	1	20	16
2	4	21	2
3	1	22	4
4	9	23	4
5	10	24	2
6	7	25	9
7	7	26	4
8	13	27	2
9	9	28	1
10	27	30	3
11	11	32	1
12	15	37	1
13	12	38	2
14	9	39	1
15	9	40	2
16	6		
17	7		226
18	8		

Grouping these figures we find that 11 per cent. of the cases developed within the first five years, 25 per cent. within the first ten, and 61 per cent. within the first fifteen.

PREVIOUS OR EXISTING SYMPTOMS OF SYPHILIS

Eighty-four persons "denied venereal"; 141 acknowledged or were seen with primary lesions; 39 patients or wives of patients had experienced miscarriages, and of the late lesions 2 were scaling palms, 3 were late mucous patches, 1 was deafness, 1 was myocarditis, 7 were gummata, 2 were perforated septa nasi, and four were periostitis.

Referring again to the main argument of our theme we find that out of 500 tabetics only 18, or somewhat more than 3 per cent. had ever exhibited any late cutaneous lesions of syphilis, an almost negligible number.

Incidentally, it was found that 2 persons had developed Raynaud's disease, while 17 had suffered from perforating ulcer of the foot. As for the use of alcohol, 24 were total abstainers, 43 were moderate drinkers and 60 admitted excessive indulgence in liquor.

FIRST SYMPTOMS OF TABES

The initial sign of the disease was recorded in 284 patients. Of all symptoms pain was the most frequently referred to, being present in 130 men and women; whereas regionally the part of the body first affected was the legs, which were first attacked in 176 individuals, or 62 per cent.

The details of these data were as follows:

1. Legs	Pain	99	176
	Numbness	38	
	Ataxia	21	
	Weakness	17	
	Stiffness	1	
2. Eyes			35
3. Stomach	Pain	11	19
	Vomiting	4	
	Indigestion	2	
	Distress	1	
	Hot flashes	1	
4. Head	Pain	9	17
	Paresthesia	4	
	Vertigo	3	
	Numbness	1	
5. Bladder			14
6. Back and sides	Pain, Hyperhidrosis		7
7. Hands (numbness)			4
8. Feet (perforating ulcer)			4
9. Chest (numbness and pain)			3
10. Rectum (pain)			2
11. Mind (nervousness)			1

GENERAL PARALYSIS

The histories of 178 instances of the disease were studied, for at the time this investigation was completed this constituted the total number recorded in our outpatient department. There were 162 males and 16 females, a ratio of 10 to 1, an even greater masculine predominance than that observed in the case of tabes. Another and even more striking phenomenon was the racial incidence of the disease. Our outpatient clientèle approximates 50 per cent. foreign-born—these being largely Russian Jews, Italians and eastern Europeans, and yet in our figures general paralysis was found in only nine persons who did not hail from the British Isles or descend from still earlier British emigrants. These notable exceptions were four French Canadians, two Germans and one Italian, one Swede and one Russian Jew.

AGE AT TIME OF DIAGNOSIS

Syphilis was acknowledged or recorded in 55 of these patients, including 2 congenital cases, and the intervals between the first signs of syphilis and of general paralysis were the following:

Interval Years	No. Patients	Interval Years	No. Patients
1	2	15	3
2	1	16	1
3	1	17	2
4	3	18	3
5	3	20	7
6	1	21	1
8	6	22	1
9	3	23	2
10	3	24	2
11	2	25	1
12	2	30	1
14	2		
			53

PREVIOUS OR EXISTING SYMPTOMS OF SYPHILIS

Forty-nine individuals "denied venereal"; 53 acknowledged or were seen with primary lesions, 3 patients or their wives had had miscarriages, while only three patients had suffered from late symptoms, one with deafness, one with gumma and one with perforation of the septum nasi.

Recurring once more to the principal theme of this investigation we find that only two patients out of 178 had experienced any late cutaneous sequelae of syphilis—the extraordinarily low percentage of 1 and a small fraction.

As to the previous use or abuse of alcohol there were 7 total abstainers, 16 moderate indulgers and 17 hard drinkers.

FIRST SYMPTOMS OF GENERAL PARALYSIS

The first symptoms of the disease were recorded in 146 persons. Mental deterioration was the most frequent early sign, and pain came second in order.

The details of these data were the following:

1. Head symptoms: nervousness in 20; paralysis in 12; vertigo in 9; headaches in 5; convulsions in 3; eye symptoms in 3; ear signs in 1; changed mentality in the form of altered character in 16; loss of memory in 12; defective speech in 2; faulty handwriting in 2, and melancholia in 1.

2. Cord symptoms: legs, numbness in 13; staggering gait in 9; pain in 11; weakness in 5; cramps and stiffness in 2. Pain in abdomen, elbow, chest and neck in 5.

3. Scattering: weakness and tremors in 5; asthesia in 3; bladder trouble in 3; syncope in 2; hyperhidrosis in 1, and tingling of fingers in 1.

SUMMARY

As a result of the study of these 1,694 case records we make the following deductions:

1. Of our syphilitics, 69 per cent. were infected between the twentieth and fortieth year of age.

2. Hereditary syphilis does not tend to show itself cutaneously at birth.

3. Initial lesions were recorded in only 58 per cent. of our primary or secondary cases, and of these, 9 per cent. were extragenital.

4. The clinical symptoms of syphilis vary much in individuals.

5. Men are more liable to leukoplakia, cerebral symptoms, mucous plaques, alopecia, iritis, and pain,

while women are more prone to early and late skin manifestations, pharyngitis, condylomata and headache.

6. Of these 1,016 recent and old syphilitic persons, only 8 had developed tabes, 7 men and 1 woman, and only 1 had become paretic, and of these 9 parasyphilitics just 3, or less than 0.3 per cent., had exhibited any late cutaneous lesions.

7. Of these patients, 20 per cent. made but one visit, 52 per cent. continued their treatment during six months, 45 per cent. during 1 year and 38 per cent. during two years or more.

8. Tabes dorsalis attacks men and women in the ratio of 6 to 1.

9. Tabes appears between the thirtieth and fiftieth years of life in 76 per cent. of the cases. The youngest tabetic was 21.

10. In 45 per cent. of the tabetics syphilis was acknowledged or found actively present (Wassermann test not included).

11. Tabes developed in 11 per cent. within five years from the date of the primary infection and 61 per cent. within fifteen years.

12. Of these 500 tabetics only about 3 per cent. had ever manifested any late cutaneous syphilids.

13. Pain was the most frequent early symptom of tabes and the legs were the first part of the body to evince the disease.

14. General paralysis occurred in men and women in the ratio of 10 to 1.

15. Although dealing with a class of patients approximately equal numerically as to native and foreign birth, 94 per cent. of these paretics were descendants of or more recently emigrants from the British Isles.

16. Paresis arises in 70 per cent. between the thirtieth and fiftieth years of life, but the youngest paretic was 16 and the oldest 76.

17. In 30 per cent. of the paretics syphilis was acknowledged or had been treated in our hospital (Wassermann not included).

18. The lapse of time between the original syphilitic infection and the first paretic symptoms was distributed more or less equally numerically from one to thirty years.

19. Of these 178 paretics merely 1 per cent. and a fraction had ever suffered from late cutaneous syphilis.

20. Numerically speaking, the brain was the first part of the paretic to give way and the cord came next.

21. Thus my original convictions, based on clinical experiences, have been proved to rest on very solid foundations of fact.

259 Marlborough Street.

Law Enforcement.—In our zeal for regulating everything by law we forget that laws are not automatic, and do not enforce themselves, and that even good motives in the best of officials do not insure good deeds. We forget that government with law and order does not exist primarily in the hands of public officials, but rather in the minds and hearts of "we, the people," who, in both the first and last analysis, are the government.—W. F. King, M.D. in *Jour. Indiana State Med. Assn.*

SYPHILIS IN THE AMERICAN NEGRO *

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The subject of syphilis in the negro is one which has never been thoroughly studied and concerning which there are still many disputes, caused largely by prejudice and broad statements and the lack of careful investigation. Statistics on diseases in the negro are very meager, and on the subject of syphilis are almost entirely lacking. The rule has been to publish personal opinions, often totally unaccompanied by evidence of any kind.

At the start it should be pointed out that there are two distinct classes of negroes, just as there are two classes of every other race, and that the same rules cannot possibly apply to both classes. In the one class we have the colored people who are trying to make something of themselves, who have become responsible physicians, lawyers, teachers and business men, and who live a life not materially different from the same type of whites. In a considerable experience with these men I am convinced that syphilis is not more prevalent among them than among the whites, although there are no statistics to prove the point.

On the other hand, there is a poorer class of negroes, the class of those who frequent the hospitals and dispensaries, and it is with negroes of this class this paper is concerned. While slaves they were valuable property, and as such were well cared for by their owners, just as good horses were cared for. When slavery was abolished, however, these people were free to live as they liked; they were unacquainted with the ways of self- and race-preservation, and as they became a political force nearly all white hands were turned against their advancement, since that seemed to be a prelude to political power. Then whisky and cocain levied their tolls on the race; they were forced to share in the general post-bellum poverty of the South, and as a result of all these conditions the majority were forced to live in the most wretched habitations, often many to a room. Even to-day their lot is none too good; as a rule, they are compelled to dwell under conditions that can breed neither good morals nor good health.

The negro springs from a southern race, and as such his sexual appetite is strong; all of his environments stimulate this appetite, and as a general rule his emotional type of religion certainly does not decrease it. Both Quillian[1] and Murrell[2] state that they have never examined a negro girl over 16 years of age who was a virgin, and the leading negro physicians of Washington admit that virginity is very rare among the poorer members of their race. In fact, virginity is as rare among this class of negresses as continence is among white men. The health reports of the District of Columbia for the ten years ending 1903 show that during this period there were 27,893 legitimate and 907 illegitimate births among the

* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Quillian: Med. Era, St. Louis, 1911, xx, 416; Am. Jour. Dermat. and Genito-Urin., 1906, x, 277.

2. Murrell: Med. Progress, 1911, xxvii, 176; Syphilis and the American Negro, THE JOURNAL A. M. A., March 12, 1910, p. 846.

whites, and 13,909 legitimate and 4,786 illegitimate births among the colored. During this time practically one-third of the population was negro. Of course, many illegitimate births among the whites were doubtless concealed, and Washington has not a large number of the poor class of whites; hence these figures are not altogether fair to the blacks, but they do serve to show how many births in that race are out of wedlock. It should be stated, however, that some of the European cities have just as high a ratio of illegitimate births as the colored population of Washington.

In 1907 Howard Fox[3] read an excellent paper on "Observations on Skin Diseases in the Negro," and his general statement "that syphilis in the negro is not only very prevalent, but more so than in the white, is one point on which the majority of writers, my correspondents and statistics agree," seems pretty generally accepted to-day. Fox collected statistics of 2,200 cases of skin-disease among negroes and an equal number among whites, and found that among the former there were 596 cases of syphilis as opposed to 279 cases in the latter. Going still further, Fox collected statistics of 15,000 cases of general disease among whites and 32,000 among blacks, and found that 3.96 per cent. of the former applied for treatment because of syphilis, and 5.82 per cent. of the latter for the same malady. Fox concludes: "To be exact, the blacks suffered 1.46 times as often as the whites." Similar views are concurred in by Hyde,[4] Morison,[5] Dyer,[6] Matas,[7] Quillian, Murrell, Corson[8] and McHutton.[9]

I have endeavored to ascertain the frequency with which syphilis occurs among the negroes of Washington, and my results have been substantially the same as those of Fox. In 2,000 cases of skin-disease personally observed, there were 440 cases of syphilis. Dr. Warfield, superintendent of Freedmen's Hospital, has personally tabulated all cases of syphilis in the large service of that hospital from 1901 to 1912. It is worth noting that practically all diagnoses were made by the white attending staff, and not by colored physicians. The results were as follows:

Total admissions	32,181	
White patients	2,160	
Negro patients	30,021	
Total admissions for syphilis	974	
White admissions for syphilis	92	or 4.35 per cent.
Negro admissions for syphilis	881	or 2.26 per cent.
Total dispensary patients	61,518	
White patients	1,367	
Negro patients	60,151	
White syphilitic patients	180	or 13.16 per cent.
Negro syphilitic patients	3,939	or 6.54 per cent.
Total negro patients	90,172	
Negro syphilitic patients	4,913	or 5.37 per cent.

It is rather difficult to explain the large number of white patients visiting this hospital to be treated for syphilis, except on the well-known ground that many white syphilitics prefer to be treated by negro physicians, probably being ashamed to call on men of their own color. Among the whites of Washington, Freedmen's Hospital is generally believed to be a strictly negro institution.

In a study of syphilis published by the Committee on Social Betterment,[10] it was found that in the hospitals of Washington 3.46 per cent. of all patients applied for treatment because of syphilitic infection, and in some recent work which I have done along the same line it seems assured that the figures for whites are only a trifle lower.

As a result of these different studies it would seem certain that more negroes than whites are treated for syphilis, and that the negro probably suffers about one and one-half times as frequently as the white.

To my mind one of the most serious facts in connection with the prevalence of syphilis among negroes is the amount that occurs in schoolchildren. While I determined the average age of infection in 500 consecutive cases to be 21 years, still in the series of 440 already mentioned there were no fewer than nine cases of acquired syphilis among schoolchildren, one of whom was 19 years old, and all of the remainder under 15. According to the infected children, and also the parents of several of them, there exist in certain of the graded schools "social clubs" composed of from four to twelve members whose sole object is sexual indulgence, as I have already reported.[11]

Of course, syphilis is by no means nuknown among white school-children, and the morals of many of them are most deplorable, but so far as I can learn acquired syphilis among them is very much rarer than among negro children. Pollack[12] has written an excellent paper on venereal diseases in the very young, and has shown that in certain instances this can be explained by the superstition that if an infected individual will touch the genitalia of a person of the opposite sex who has never known sexual congress, the disease will spontaneously disappear.

In dealing with the late results of syphilis it is still more difficult to gather reliable statistics, but the experience at the Johns Hopkins Hospital and at the Freedmen's Hospital would seem to show that aneurysm and aortic insufficiency due to syphilis are commoner among negroes than among whites. Paresis is about equally common in the two races, while tabes is distinctly less common among the colored, although, as Hecht[13] has pointed out, much commoner than has been supposed. Other types of syphilitic nervous lesions, according to Fox, are more common in the negroes.

The cutaneous manifestations of syphilis in the two races vary considerably, as the following statistics gathered by myself will show. These figures were derived from a personal study of 2,000 consecutive cases of skin-disease in the negro, and an equal number in the white race.

	Whites	Blacks
Chancre	2	12
Extragenital chancre	12	1
Macular	18	10
Maculopapular	8	4
Annular	..	43
Pustular	4	12
Secondary	22	68
Gumma	14	80
Nodular	20	19
Palmar	12	3
Tertiary	12	39
Hereditary	10	42

3. Fox: Jour. Cutan. Dis., 1908, xxvi, 67, 109.
4. Hyder Morrow's System of Genito-Urinary Diseases, Syphilology and Dermatology, New York, 1893, ii, 18.
5. Morison: Tr. Am. Dermat. Assn., 1888, xii, 29.
6. Dyer: South. Med. Jour., 1913, vi, 10.
7. Matas: Tr. Am. Surg. Assn., 1896, xiv, 483.
8. Corson: Am. Jour. Dermat. and Genito-Urin., 1906, x, 240.
9. McHutton: Am. Jour. Dermat. and Genito-Urin., 1906, x, 6.
10. Kober: Rep. Com. on Social Betterment, President's Homes Commission, Washington, D. C., 1908, p. 137.
11. Hazen: Washington Med. Ann., 1913, xii, 223.
12. Pollack: Bull. Johns Hopkins Hosp., 1909, xx, 142.
13. Hecht: Am. Jour. Med. Sc., 1903, cxxxvi, 705.

Curiously enough, extragenital chancres among negroes are extremely rare. I have seen but one case, and most of my confrères who have had a considerable experience with the race have seen none.

Macular syphilids are not common either in the pure-blood negroes or in mulattoes, but when present can usually be seen easily; hence it can hardly be assumed that the natural pigment hides the eruption, although such a thing is perfectly possible. Papular syphilids are the common variety; in fact, all skin-diseases in negroes have a tendency to be more papular than in the whites. While the ordinary types of papular eruption are the ones usually encountered, still there are five varieties seen among negroes much more commonly than in other races. The first is the follicular variety, in which the lesions are very small, and situated at the hair follicles; the second is the annular kind, already carefully studied by both Fox[14] and myself[15]; the third is the frambesiform, in which there are large vegetating lesions somewhat resembling those of yaws; the fourth is the large semiglobular papule with a diameter of 1 cm. or more, and the fifth is the papulo-squamous, which may look like psoriasis. Pustular or papulopustular lesions are fairly commonly seen as the first cutaneous manifestation of the infection. Condylomata are more common than among whites. It is not at all unusual to encounter cases in which there is a fresh infection but no cutaneous eruption.

Relatively speaking, tertiary manifestations are but little more prevalent than among whites: gummata are commoner, but nodular lesions are rarer. Typical cases of intractable palmar syphilids are indeed rarities.

Mucous patches are probably commoner than among whites, and alopecia in the two races has about the same incidence; but glandular enlargement is much more constant in the colored. It must be borne in mind, however, that glandular enlargement is present in almost all negroes, whether syphilitic or not; hence one dares not put too much stress on palpable glands. Gummata of the sternoclavicular articulation and also of the testicle are very common among negroes.

I cannot agree with the usual statement that the lesions of syphilis are less severe in the negro; I can see no difference in the course of the disease in the two races, either with respect to the clinical symptoms or to the Wassermann reaction. Certain of the cases of papular syphilis are very intractable to treatment; it sometimes requires months of steady treatment to wipe out the lesions. As regards treatment, it is somewhat surprising to find that negroes attend the clinics as regularly as they do: they attend just as faithfully as do white patients, and the magic words "blood-test" have much influence over them. Usually they are very docile patients: while they complain of the pain of intramuscular injections, they will come back for more, though they cannot be depended on to carry out the inunction treatment. The secret of treating them is to show them that you are taking an interest in them, and also that you mean just what you say.

The prophylaxis of syphilis in the negro race is especially difficult, for it is impossible to persuade the poor variety of negro that sexual gratification is wrong, even when he is in the actively infectious stage. It is probable that sex hygiene lectures will not have the slightest effect on this type, especially when one considers the risks that many of our own medical students run. As regards personal prophylaxis, all male babies should be circumcised, both for the purpose of avoiding local irritation which will increase the sexual appetite and for preventing infection. It is questionable whether adult negroes should not be taught the use of prophylactic packages, which appear to have worked much good in certain quarters.

The home problem must be studied, overcrowding prevented and opportunities furnished to live in decent dwellings. The passage and enforcement of a strict curfew law might do much good. The cocain and alcohol problems are also urgent, for indulgence in either of these drugs usually stimulates sexual desire and renders the victim careless as to the means of gratification. Doubtless most cases of rape result from the effects of one or the other of these substances. Syphilis should certainly be made a reportable disease, if only for statistical purposes. Parents who bring syphilitic children into the world should be forced to provide competent medical attention; there should be some law by which this could be brought about. Young children with syphilis will usually not attend a clinic, and there should be some way in which they could be forced to do so, possibly through the aid of the juvenile court or the Board of Children's Guardians.

It is probably in the hospitals, however, that the greatest good can be done, and this by shortening the period of infectivity as much as possible. The way that syphilis is treated in the average ward or outpatient department is a disgrace. Many physicians feel that they do not care to bother with the treatment of this infection, and so leave the work to the interns, and many other physicians are profoundly ignorant of the immense amount of detail work required for the proper treatment of syphilis. The old method of prescribing a few pills is, and should be, a thing of the past. We must now work with our serum reactions and injections of salvarsan and mercury, avoiding the injury that may come from overdosage, while taking care to give a sufficiency. If a factory turned out goods in the slipshod way that the average hospital hands out syphilitic medication, it would soon go to the wall. In the hospital wards there is the greatest need for several things. In the first place, more beds for venereal cases are urgently needed; these should be in a general hospital, not in a special hospital, for patients would decline to go there because of the stigma attached to such an institution. There should be one man to direct the treatment of all syphilitic cases; there should always be salvarsan on hand; every hospital should make a provision for competent Wassermann work (which certainly is not the case at present, some hospitals refusing to admit they ever receive syphilitic cases), and lastly, there should be better cooperation between the department of syphilis and the other departments. All syphilitic patients leaving the hospital should be referred to the syphilitic clinic for general treatment.

As regards the dispensary service, the same general rules hold as for the hospital. Clinics should be conveniently located, the attendance should be regular, and there should be proper facilities for work. Every dispensary should have a corps of visiting nurses, so that patients can be followed in their homes and

14. Fox: Arch. f. Dermat. u. Syph., 1912, cxiii, 315; A Case of Annular Papular Syphilis in a Negress, THE JOURNAL A. M. A., May 10, 1913, p. 1420.
15. Hazen: Jour. Cutan. Dis., 1913, xxi, 148.

instructed in prevention, in addition to being persuaded to return for treatment.

The special hospitals, as the eye and ear hospitals, deserve especial censure, as they make no provision for the general treatment of syphilis. Each hospital should have a special department where this general treatment can be satisfactorily administered under the care of a man skilled in this line of work, for patients cannot be expected to attend two different hospitals, one for a local condition, and one for general infection with syphilis.

The Rochambeau.

OBSERVATIONS ON THE PATHOLOGY OF SYPHILIS *

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It is hardly necessary to say that a knowledge of the real pathology of syphilis would be of great assistance in the practical handling of the disease. Our attempts to treat syphilitics would be more successful if we knew more about what is actually going on in the body, more about where and why the spirochetes localize and more about the mechanism of relapse. At present our knowledge on these and other points is in the making. What has passed for many years as the pathology of syphilis is really only a small part of the subject, namely, pathologic anatomy. This branch has been unusually barren of helpful suggestions, and such interpretations as have been made have necessarily not been convincing. It is only since the recent development of the pathologic physiology or experimental pathology of the subject that we are beginning really to understand something of the pathogenesis of the disease and to profit by this knowledge. In this paper I desire to outline several of the newer theories of syphilis which seem to have enough evidence in their favor to warrant discussion.

I. EARLY LOCALIZATION OF THE SPIROCHETES

The first proposition is that the spirochetes take their final position during the period of the secondary septicemia and that the future course of the disease is determined by this early localization. In other words, syphilis is not to be thought of as a chronic septicemia extending over years, but rather as a complex of local infections which date back to an early septicemia. This theory is illuminating and has practical bearings. As far as I know it cannot be attributed to any one observer. It seems to have developed independently and almost unconsciously among many observers, and evidence in its favor has come from several different sources. The first suggestion came to me from the demonstration that the nervous system may be invaded in the primary and secondary stages. Changes in the spinal fluid indicating early infection are now well known, and the spirochetes have been demonstrated in the spinal fluid of secondary cases by inoculation of the monkey by Hoffman,[1] and by inoculation of the rabbit by Dr. Hough and myself[2] and by Uhlenhuth and Mulzer.[3] From these accepted facts it is but a step to imagine that these patients are the ones who later suffer from syphilis of the nervous system. This is partly a step in the dark, but we are at least sure that the foundations of later lesions *can* be laid down early in the disease.

Additional support of this theory has been given by the systematic work of Uhlenhuth and Mulzer on inoculations of the rabbit's testicle with blood from different stages of the disease. These authors[3] have shown that, in the primary and secondary stages, 80 per cent. of a large series of cases give positive results for spirochetes, while in the latent stage no positive results at all have been obtained. This negative evidence also suggests, although of course it does not absolutely prove, that the spirochetes do not circulate after the first septicemia. It seems more probable that they localize early and then produce lesions *in situ*. The alternative of this theory has been stated by Noguchi[4] as a process of sensitization of the brain, for example, by a long systematic infection until the brain is susceptible to a passing infection. The weight of evidence, however, is in favor of the other theory, because we know that the spirochetes can localize early in the disease and it has not been proved that they circulate in the blood to any extent during the later stages.

II. SPECIAL LOCALIZING POWERS OF CERTAIN STRAINS OF SPIROCHETES

With this idea as a background, the affinities or localizing powers of the spirochetes assume great importance. If we consider the spirochetes as a whole we secure an instructive side-light on the subject. In *Spirochaeta dentium*, we have an organism which lives only a saphrophytic existence in the mouth or at best multiplies excessively in local lesions produced by other causes. *S. schaudinni*, on the other hand, is apparently able to produce an ulcer in the skin, but does not metastasize. Again, the spirochetes of relapsing fever produce no skin-lesions, but live in the bloodstream. An advance in localizing power is seen in *S. pertenuis*, the cause of yaws. This organism produces a local skin lesion which may be followed by a septicemia, but the organisms seem invariably to return to the cutaneous tissues and to localize there. It should be said that yaws has not been studied so intensively as syphilis in regard to localization; but lesions of the brain and internal organs have never been demonstrated and the disease is not hereditary. Coming to *S. pallida* itself, we have an organism which produces a local skin lesion, then a general septicemia and finally local lesions in practically any part of the body.

While *S. pallida* can produce lesions almost anywhere, in a given case we usually find a definite localization in the lesions and not a diffuse process. Thus we may find lesions only of the skin, or only of the nervous system, etc. Fournier[5] has tabulated 4,400 cases of this kind; 40 per cent. were lesions of the nervous system, 11 per cent. of the reproductive organs, 11 per cent. of the bones, and 0.3 per cent. of the arteries, etc. This series of cases must have been a selected one, in some respects, because recent work

* From the Department of Pathology, Army Medical School.
* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Hoffman: Dermat. Ztschr., 1906, xiii, 561.
2. Nichols, H. J., and Hough, W. H.: Demonstration of Spirochaeta Pallida in the Cerebrospinal Fluid, THE JOURNAL A. M. A., Jan. 11, 1913, p. 108.
3. Uhlenhuth and Mulzer: Berl. klin. Wchnschr., 1913, L, 2033.
4. Noguchi: München. med. Wchnschr., 1913, p. 2484.
5. Fournier: Prophylaxis of Syphilis, translated by Marshall, New York, Rebman Company, 1906, p. 139.

has shown that the localization in the heart and arteries must be higher; but Fournier's tabulation shows possible results of diversity in early localization.

It seems reasonable that all strains are able to infect several organs indifferently. Thus it has been shown experimentally by Neisser[6] and by Uhlenhuth and Mulzer[8] that in the monkey and rabbit the liver, spleen, bone-marrow and testicle are most infectious. The same is probably true for man. In addition we must recognize the probability that certain strains, besides infecting these organs, have a special power of infecting other tissues. The skin and the nervous system may be mentioned as extremes.

It can be stated with certainty that different strains of *S. pallida* produce different kinds of lesions in the rabbit. I have worked altogether with ten strains from different sources, and certain of these strains have well-marked characteristics which enable one to pick them out without other information. The lesions may be classified in general as either large, loose, edematous ones, or small, hard cartilaginous-like ones. Granted that differences in strains exist, the important question is, Are these temporary varieties which may occur in one infection or are they permanent strains for a number of infections? Working with a large number of transfers in many animals I have found that these differences hold good, and from this evidence the strains appear to be more or less permanent. In addition to the differences in the lesion, Noguchi[7] has called attention to differences in morphology of the spirochetes, such as thick, thin and medium forms and also to a correlation between morphology and character of lesion. Have these facts any bearing on the question of localizing powers? It seems very probable that these apparently distinct and permanent strains of *S. pallida* differ in their localizing power.

The way to settle this question of strains would seem to be to isolate strains from different sources and to carry them on long enough in rabbits to determine their characters. I have recently reported[8] on a strain isolated from the nervous system which possesses distinctive characters in the rabbit. The local lesions are extremely hard with a necrotic center; more particularly, this strain tends to generalize with production of lesions in the eye and eyebrows. No other strain has shown this property. I suggest that the nervous system may be less readily infected than other organs, and that the invasive power of this strain may be significant in infection of the nervous system.

Practically, as is well known, the early localization in the nervous system can be determined with certainty by examination of the spinal fluid; and if ordinary measures of treatment are not sufficient to control the infection, it can be treated locally.

III. LOCALIZATION OF SPIROCHETES IN THE TESTICLE

There is one other localization which merits special consideration, namely, infection of the reproductive organs. Just as the affections of the nervous system are of supreme importance for the individual, so infections of the reproductive organs are of supreme importance to the race. According to the views here outlined, the reproductive organs, especially the testicle, if infected at all, must be infected early and must remain infected for many years. If this is so, it should be possible to detect the infection by examination of the spermatic fluid. Spirochetes have been demonstrated in the spermatic fluid by inoculation twice, once by Finger and Landsteiner,[9] using a monkey, and once by Uhlenhuth and Mulzer,[10] using the rabbit. Both cases were in the secondary stage. I have recently succeeded in finding typical *S. pallida*, with the dark-field illumination, in the apparently normal prostatic fluid of a secondary case. The exact source of the organism in this case is naturally in doubt, but it must be in the reproductive system. A more important finding would be the demonstration of the organism in the seminal fluid during the latent stage, for example, in a candidate for marriage. I have made two unsuccessful series of inoculations from cases in the secondary stage and one from a case in the latent stage. Inoculation from one other case in the latent stage, a candidate for marriage, resulted in the development, after forty-five days, of a definite hard nodule, but no spirochetes could be demonstrated by fresh examinations, smears or sections. To my mind this lesion was syphilitic and compares with similar nodules produced by the inoculations of paretic brains in which I was unable to demonstrate spirochetes,[11] although the virus was undoubtedly present. Experimentally, there is no difficulty in showing the affinity of *S. pallida* for the sexual organs as has been mentioned. In my experience intravenous injections of the rabbit with suspensions of spirochetes from any source result always in lesions of the scrotum and testicle, and sometimes only in these.

Practically, determination of infection of the reproductive organs by local examination is not so important as examination of the spinal fluid for local infection, because by the Wassermann test, the provocative Wassermann test or luetin reaction we can almost always find an indication of infection exclusive of the nervous system, if such exists, and experience has shown that the testicle rarely escapes. But the subject deserves further work, because if it could be shown that the testicle has escaped infection, marriage might be permissible even if other parts of the body were infected.

IV. THE INHIBITING EFFECT OF ONE LOCAL LESION ON THE DEVELOPMENT OF LESIONS ELSEWHERE

According to these views, the character of the spirochetes is of more importance than the resistance of the body, and eventually determines the picture of the disease. On the other hand, one factor in the host must not be neglected. This is the inhibiting effect of one active lesion. This effect is well known as far as the body as a whole is concerned, and has been experimentally demonstrated on monkeys and paretics — namely, that an animal or man once and still infected will not develop lesions on reinfection. I believe the same holds true within the body — namely, that lesions in one organ tend to inhibit the development of lesions elsewhere. I have been able to prove this proposition experimentally in rabbits.[12] If a rabbit is infected in one testicle, the spirochetes develop a

6. Neisser, A.: Pathologie und Therapie der Syphilis, Berlin, Julius Springer, 1911, p. 97.
7. Noguchi: Jour. Exper. Med., 1912, xv, 201.
8. Nichols: Jour. Exper. Med., 1914, xix, 362.
9. Finger und Landsteiner, referred to by Neisser (Footnote 6).
10. Uhlenhuth and Mulzer: Arb. a. d. k. Gsndhtsamte., 1913, xliv, No. 3.
11. Nichols, H. J., and Hough, W. H.: Positive Results Following the Inoculation of the Rabbit with Paretic Brain Substance, THE JOURNAL A. M. A., July 12, 1913, p. 120.

local lesion, but they also invade the circulation and localize elsewhere, especially in the other testicle. No lesion develops, however, in the second testicle while the lesion in the first testicle is active. If the first testicle with its lesion is excised, a lesion promptly appears in the second testicle.

These experimental findings have a bearing on the human pathology of syphilis. They give a clue to the explanation of nervous relapse after inadequate treatment with salvarsan. Given a secondary case with invasion of the nervous system, as long as the skin lesions are active, symptoms rarely occur in the nervous system; but if the skin lesions are suddenly healed up with salvarsan and yet the spirochetes in the nervous system are not all destroyed, the inhibiting effect of the skin lesions is lost and a lesion flares up in the nervous system. Vice versa, in paresis, pathologic anatomists have pointed out that systemic lesions of syphilis are rarely seen. The lesion in the brain, being progressive and fatal, has permanently inhibited the development of spirochetes localized elsewhere. If, however, a lesion is located in some organ in which it is not progressive indefinitely, but resolves after a time, then it is only a question of time when the spirochetes localized in some other part of the body will begin to show their presence by a lesion.

SUMMARY

The views here expressed may be summarized as follows:

1. In syphilis, the spirochetes localize during the early septicemia and probably do not localize in the later stages.

2. All strains probably localize indifferently in certain organs. In addition, certain strains probably have an especial localizing power.

(*a*) Various strains of *S. pallida* exist which differ in pathogenic properties.

(*b*) These strains are probably permanent variations.

(*c*) A strain isolated from the nervous system has shown marked power of generalization in the rabbit.

3. Early localization in the testicle has been demonstrated experimentally, and determination of latent infection may be feasible as a clinical procedure.

4. An active lesion in one part of the body tends to inhibit the development of potential lesions in other parts of the body.

(This symposium will be completed next week and will be followed by the discussion.)

HEMORRHAGE FROM THE SUPERIOR PETROSAL SINUS

AS A COMPLICATION IN OPERATIONS ON THE LATERAL SINUS*

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Hemorrhage from the superior petrosal sinus exists as a possibility in operations on the lateral sinus despite the fact that, with one exception, no mention is made of it in any of the literature published on mastoid or lateral sinus operations. Since attention has now been called to it there is little to add except to show briefly how the complication occurs, and how its results are frequently unfavorable to the patient.

The superior petrosal sinus is described in the various textbooks on anatomy as being one of the terminal divisions of the cavernous sinus, running in a small groove in the superior border of the petrous portion of the temporal bone in the attached margin of the tentorium cerebelli and terminating in the lateral sinus at the point where the sigmoid portion of that vessel begins.

While this termination is usually described as being through a single opening in the wall at the knee of the lateral sinus, this frequently is not the case. The petrosal is often found to empty itself through a series of openings 3 or 4 mm. apart, extending along the sinus wall at a distance of 2 or more cm. Knowledge of this fact is obviously of surgical importance in the control of hemorrhage from these openings after the lateral sinus has been incised.

It was not until some years after Richards had called attention to the faulty technic that was being generally followed in operations for sinus thrombosis that the importance of accurate inspection of the interior of the sinus was generally accepted. The latest authorities, however, now agree on the importance of getting a distinct view of the interior of the vein, and of removing the infected walls as well as the thrombus. Kerrison emphatically expresses this view in his book, recently published, when he says:

> The aim is to expose the interior of the vessel to actual inspection. To attempt less but adds to the patient's risks and supplies the surgeon with absolutely no data of diagnostic value.

In his description of the technic required to accomplish this, however, he implies that beyond possibly an emissary vein the sources of hemorrhage to be considered are solely the two extremities of the sinus itself. The other well-known text-books and articles on the subject give practically the same impression.

Except in Dr. Richards' article on operative treatment of sigmoid sinus thrombosis,[1] a review of literature relative to operations for thrombosis of the lateral sinus reveals comparatively few references to the superior petrosal sinus, and none at all to hemorrhage from that vessel as a possible complication to be encountered during the operation; so it would seem that the occurrence is not frequent. This view is strengthened by the experience of the majority of the surgeons whom I have consulted on the subject. Few of them recall cases in which the hemorrhage was definitely found to arise from the superior petrosal sinus, and yet not infrequently when a sinus is opened for relief of a suspected thrombus, hemorrhage is encountered despite the attempt at control exerted above and below the point of incision.

That the complication does not more frequently arise is due to the fact that the field of operation in the majority of cases is limited to the vertical limb of the sigmoid, and the posterior point of compression for the control of hemorrhage is anterior to, or just over the entrance of, the superior petrosal sinus. In more extensive cases of moderate duration the thrombus will frequently be found to extend into the superior petrosal, in which case there is, of course, no hemorrhage from that vessel.

Richards speaks of having opened the superior petrosal sinus almost throughout its whole length in

12. Nichols: Jour. Exper. Med., 1911, xiv, 211.

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Richards: Arch. Otol., 1905.

a case of extensive thrombosis which had extended to it from the lateral sinus. While I have seen thrombi removed from the lateral sinus well past the openings of the superior petrosal without hemorrhage occurring from it, I have not seen the operation carried to that vessel in order to obtain from it free bleeding, although theoretically that might be the course to pursue.

The cases in which embarrassing hemorrhage from the superior petrosal are likely to occur are those in which the thrombus in the sigmoid extends to the region of its entrance but does not enter it. Injury to the sinus or to an emissary vein in the region of its knee during a mastoid operation will sometimes give rise to a rapidly formed septic clot which does not block the petrosal. In such cases, the pressure plug for control of hemorrhage from the torcular end of the sinus is placed behind the entrance of the superior petrosal, and if this is not blocked by clot, bleeding from it will obscure the field of operation and interfere with proper inspection of the interior of the vein.

Unless the source of this hemorrhage is recognized and the bleeding stopped, the operation is botched, and its purpose to ascertain definitely the state of things within the sinus is defeated. The operator relies on his assistant to control the hemorrhage from above and below the line of his incision with pressure pads placed on the wall of the vein. In such cases, the assistant whose office it is to block both ends of the sinus, seeing the free escape of blood despite his efforts at compression, may temporarily overlook the position of his compresses in relation to the opening of the petrosal, and exert too great pressure on the cerebellum in his vain attempt to control the hemorrhage. The operator, at the same time intent on observing the interior of the vein, is harassed by the flow of blood over the field, and he too may, in the confusion, overlook the source of hemorrhage.

The result is that more blood is lost than is good for the patient, the wound has to be packed to control the bleeding, and the patient is returned to bed with the source of his infection still present, and his resistance lowered by the loss of blood. This occurrence is exceptional, as has been stated; nevertheless it is sufficiently frequent to warrant some thought of it as a possibility in operations for sinus thrombosis. That it has received no mention in literature may be because it has been considered plainly obvious by the authors; but like other simple facts that are too infrequently met to be well remembered, it escapes attention until personal experience impresses on one the importance of its early recognition. Even personal experience with this complication does not invariably teach, for I have seen it occur to an operator's great confusion and yet remain to the end entirely unrecognized by him; otherwise he might easily have prevented it.

The tendency to blame the assistant for any escape of blood that occurs after the sinus has been opened, regardless of the position of pressure pads, is not uncommon. The relation of the distal compress to the opening of the superior petrosal must, of course, be considered, and I think that we have all seen undue pressure exerted on the sinus behind its knee without effect on the hemorrhage, but with what appeared to be marked traumatism to the cerebellum.

In the removal of cells from the angle of bone that lies between the knee of the sinus and the dura of the middle fossa, hemorrhage from the superior petrosal is occasionally seen. I know of three cases in which the vein was injured in this location without untoward result; two occurred during operations on very pneumatic mastoids, and one during a labyrinth operation. Here the injury is of little consequence, as the source of hemorrhage is easily seen and easily controlled; but in operations on the lateral sinus, unless the source of hemorrhage is recognized promptly as being from the superior petrosal sinus, when that vessel is the one involved, the delay in stopping it, and its interference with the object of the operation to remove the infected focus, jeopardize materially the patient's chance of recovery. For this reason, and from the fact that I have found no reference to this subject in literature, I have taken the liberty of calling attention to it.

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STUDIES ON THE ABSORPTION OF DRUGS*

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The idea is current among both pharmacologists and clinicians that substances which are readily soluble in water are also readily absorbable from the gastrointestinal canal, except when some physical law, such as that of osmosis, interferes with the absorption. Thus a prominent pharmacologist, speaking of a drug which requires 950 parts of water for its solution, says, "It is evident, however, that a substance which is so sparingly soluble as this must go into solution in the intestine with great slowness, and, therefore, linger in the bowel for a considerable length of time."

A second belief, current more particularly among clinicians, and also held by many pharmacologists, is that there exists a fairly constant ratio between the dose of a drug by subcutaneous administration and that by mouth or rectum, or between the latter two. Cushny[1] says:

> As absorption from the subcutaneous tissues is so much more rapid than that from the stomach and intestines, when the drug is in perfect solution the dose has to be reduced. As a general rule, about one-half of the ordinary amount is sufficient.

It is, of course, recognized that there are many exceptions to this rule.

In a previous communication[2] one of us discussed some of the phases of this subject, considering mainly certain of the digitalis bodies. The present investigation is an amplification of that work in which we have included the study of absorption of different classes of drugs, using various species of animals.

The obvious importance of the subject of absorption to both the pharmacologist and the clinician led us to conduct our work with a view to its practical applications. The general mode of experimentation consisted of the administration of graded doses of the drug in question by each of the several channels available, and the determination of the approximate average minimal dose required by each channel for the

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* From the Laboratory of Pharmacology of Cornell University Medical College.

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Cushny, A. R.: Textbook of Pharmacology and Therapeutics Ed. 5, Philadelphia, Lea and Febiger, 1910, p. 35.

2. Hatcher, R. A.: Variation of Dosage Dependent on the Method of Administration, THE JOURNAL A. M. A., Aug. 27, 1910, p. 746.

production of a constant effect. Most of our figures for the digitalis bodies are taken from the records of previous experiments, many of which were primarily conducted for other purposes. Here, also, much of our work was confirmed by the determination of the actual amount of the drug present in the body. Many of the latter experiments have been discussed in the previous paper[2] and need not be again detailed in this place. The work has extended over several years and includes considerably more than a thousand experiments. For the sake of brevity we have presented the results in the accompanying tables. In addition we have compiled Part X of Table I from Maurel's figures.[3]

TABLE 1.—DOSES AND THEIR RATIOS FOR DIFFERENT CHANNELS OF ADMINISTRATION *

	Vein	Muscle	Subcut.	Mouth	Rectum
I. STRYCHNIN SULPHATE					
A. To dogs: hyperexcitability.					
Dose, mg. per kg.	0.075	0.075	0.075	0.075	0.075
Ratio	1	1	1	1	1
B. To cats; hyperexcitability.					
Dose, mg. per kg.	0.02	0.08	0.08	0.1	0.1
Ratio	1	4	4	5	5
	....	....	1	1.25	1.25
C. To guinea-pigs; convulsion.					
Dose mg. per kg.	0.3	3.0	3.0	40.0	....
Ratio	1	10	10	133	....
	....	....	1	13.3	....
II. PICROTOXIN					
A. To cats; convulsion.					
Dose, mg. per kg.	0.3	0.5	0.75	2.25	2.25
Ratio	1	1.6	2.5	7.5	7.5
	....	....	1	3	3
B. To guinea-pigs; convulsion.					
Dose, mg. per kg.	1.0	2.0	5.0	50.0+*	....
Ratio	1	2	5	50	....
	....	....	1	10	....
C. To rabbits; convulsion.					
Dose, mg. per kg.	1.5	....	5.0	20.0—*	....
Ratio	1	....	3.3	14	....
	....	....	1	4	....
III. CAMPHOR					
A. To dogs; convulsion. Solution in oil.					
Dose, gm, per kg.	....	0.5	0.75	0.5	0.75
Ratio	....	1	1.5	1	1.5
	....	....	1	0.66	1
B. To cats; convulsion. Solution in oil.					
Dose, gm. per kg.	....	0.5	0.5	0.25	0.75
Ratio	....	1	1	0.5	1.5
C. To dogs; convulsion. Solution in alcohol.					
Dose, gm. per kg.	....	0.75	1.5	0.5—	0.5+
Ratio	....	1	2	0.75	0.75
	....	....	1	0.33	0.33
D. To cats; convulsion. Solution in alcohol.					
Dose, gm. per kg.	....	0.7	0.5	0.5	....
Ratio	...	1	0.7	0.7	....
IV. NICOTIN					
A. To cats; fatal dose.					
Dose, mg. per kg.	1.5	....	5.0	10.0	....
Ratio	1	....	3.3	6.6	....
	....	....	1	2	....
B. to rabbits; fatal dose.					
Dose, mg. per kg.	10.0∓	....	30	200+	....
Ratio	1	....	3	20	....
	....	....	1	6.6	....
C. To guinea-pigs; fatal dose.					
Dose, mg. per kg.	2.25	....	10.0	250	....
Ratio	1	....	4.4	111	....
	....	....	1	25	....
V. OUABAIN					
A. To cats; fatal dose.					
Dose, mg. per kg.	0.1	....	0.15	0.7	....
Ratio	1	....	1.5	7	....
	....	....	1	4.6	....
B. To guinea-pigs; fatal dose.					
Dose, mg. per kg.	0.2	....	0.3	30.0+	....
Ratio	1	....	1.5	150	....
	....	....	1	100	....
C. To rats; fatal dose.					
Dose, mg. per kg.	21.0	....	100±	infinity	....
Ratio	1	....	4	infinity	....
VI. DIGITOXIN					
A. To cats; fatal dose.					
Dose, mg. per kg.	0.35	....	0.4	2.0	....
Ratio	1	....	1.13	5.7	....
B. To guinea-pigs; fatal dose.					
Dose, mg. per kg.	0.75	....	1.5	28.0+	....
Ratio	1	....	2	37 +	....
	....	....	1	18.5	....
C. To rats; fatal dose.					
Dose, mg. per kg.	17.0	....	43.0+	140 +	....
Ratio	1	....	2.8	8.3+	....
	....	....	1	3.3	....
VII. ATROPIN SULPHATE					
A. To cats; dilatation of pupil.					
Dose, mg. per kg.	0.02	0.03	0.04	0.5	0.7
Ratio	1	1.5	2	25	35
	....	....	1	12.5	17.5
B. To guinea-pigs; fatal.					
Dose, mg. per kg.	85	....	600	....	....
Ratio	1	....	7	....	....
VIII. APOMORPHIN					
A. To dogs; emesis.					
Dose, mg. per kg.	0.05	0.05	0.2	5.0	5.0
Ratio	1	1.2	4	100	100
	....	....	1	25	25
B. To cats; emesis.					
Dose, mg. per kg.	0.1	0.75	1.0	2.5	2.5
Ratio	1	7.5	10	25	25
	....	....	1	2.5	2.5
IX. MORPHIN					
A. To dogs; depression.					
Dose, mg. per kg.	0.1	0.1	0.1	1.0	4.0
Ratio	1	1	1	10	40
B. To cats; restlessness.					
Dose, mg. per kg.	0.5	0.5	0.5	0.5	1.0
Ratio	1	1	1	1	2
C. To cats; analgesia.					
Dose, mg. per kg.	0.075	1.0?†	1.0?†	0	0
Ratio	1	13.3?	13.3?	.....	....
D. To guinea-pigs; fatal.					
Dose, mg. per kg.	200+	400	400	1000	....
Ratio	1	2	2	5	....

X. RABBITS ‡

A. Spartein Sulphate

	Vein	Subcut.	Mouth	
Dose	0.03	0.1	0.5	Mg. x kg.
Ratio	1	3.3	16	
	....	1	5	

B. Caffein Hydrobromid

Dose	0.2	0.3	1.8	Mg. x kg.
Ratio	1	1.5	9	
	....	1	6	

C. Strychnin Sulphate

Dose	0.5	1.0	3.0	Mg. x kg.
Ratio	1	2	6	
	....	1	3	

D. Potassium Sulphocyanid

Dose	0.15	0.55	1.0	Mg. x kg.
Ratio	1	3.6	6.1	
	....	1	1.8	

* In this table the sign + indicates that the dose stated often fails to produce the effect; the sign — indicates that a smaller dose sometimes produces the effect.

† Presence of analgesia exceedingly doubtful with any but vein dose.
‡ From Maurel.

TABLE 2.—COMPILATION FROM TABLE 1

	Ratios	Subcut.	Mouth	
Dogs:				
	Minimum	1	0.33	Camphor
	Maximum	1	25.00	Apomorphin
	Mean	1	7.4	
	Corrected *	1	2.9	
Cats, ratios:				
	Minimum	1	0.5	Camphor
	Maximum	1	12.5	Atropin
	Mean	1	3	
	Corrected †	1	2	
Guinea-pigs, ratios:				
	Minimum	1	2.5	Morphin
	Maximum	1	100.0	Ouabain
	Mean	1	28.4	
	Corrected ‡	1	16.9	
Rabbits, ratios:				
	Minimum	1	1.8	Potassium sulphocyanid
	Maximum	1	6.6	Nicotin
	Mean	1	4.4	

* Corrected by omitting from the average the exceptional case of apomorphin.
† Corrected by omitting the exceptional case of atropin.
‡ Corrected by omitting the exceptional case of ouabain.

3. Maurel: Compt. rend. Soc. de biol., 1907, pp. 897, 960; ibid., 1908, p. 725.

CONSIDERATION OF TABLES

Table 1 gives the drugs used, the animals to which each was given, the effect chosen for observation, the modes of administration employed, the average minimal dose by each of these modes, and the ratios of these doses. The ratios have been calculated by taking the intravenous, the intramuscular or the subcutaneous dose, as the case demanded, as unity and dividing this

into the doses determined for the other modes of administration.

Comparing Parts I, IV, VII, VIII and IX of Table 1, in all of which we are dealing with alkaloidal salts, we see that the ratios of absorption from the several channels in any one animal differ considerably. Thus, in the case of dogs the oral dose of strychnin which causes hyperexcitability is the same as that by vein, intramuscularly or subcutaneously, while for morphin the oral dose which causes perceptible depression is ten times that by vein, though the intramuscular and subcutaneous doses are the same as the intravenous. The difference in the case of apomorphin is even more striking, and here also, the intramuscular and subcutaneous doses are larger than the intravenous, and the subcutaneous is larger than the intramuscular dose. Analogous differences are seen to prevail in the cases of cats and guinea-pigs. In the case of man it might be mentioned that approximately the same dose of apomorphin is required to produce emesis whether given by mouth or subcutaneously. The same ratio holds for morphin, and one of us (C. E.) has also found that man requires about the same dose of morphin by vein as orally or by subcutaneous injection to produce a given effect.

It is obvious, therefore, that drugs of the same general class—alkaloidal salts—show very different ratios of absorption in any one of the several classes of animals.

It is equally obvious that the same classes of drugs show very wide differences in their ratios of absorption in different animals.

When the absorption ratios of different drugs in the same class of animals are compared we again find wide variations. For example, in cats the oral dose of morphin required to produce restlessness is the same as the intravenous dose, atropin requires 25 times the intravenous dose to cause dilatation of the pupil when given by mouth, while the oral dose of picrotoxin is only 7.5 times, and that of digitoxin 5.7 times the intravenous dose.

Salant and Rieger[4] give the same amount—150 mg. per kilogram—of caffein as the fatal dose for cats for both oral and subcutaneous administration, and we have found that the fatal dose by vein for cats may vary from 5 to 150 mg. per kilogram, depending on the rate of administration. This observation is of especial importance in view of the fact that the smaller fatal dose corresponds to amounts habitually taken daily by many persons in the form of tea and coffee, and caffein is occasionally used intravenously in man.

A given animal, therefore, shows widely divergent ratios of absorption from the several channels for different drugs.

Table 2 presents the results of a collective analysis of all the ratios, and shows the mean ratios for the four types of animals employed, taking into consideration all of the drugs used. As certain of the figures stood out prominently as marked exceptions to the general run of ratios, the mean ratios were recalculated with these more exceptional instances omitted, as indicated in the footnotes to the table. One is immediately impressed with the fact that in both dogs and cats the corrected mean ratio of the oral to the subcutaneous dose agrees closely with the statement quoted from Cushny,[1] that the subcutaneous dose is about half of the ordinary oral dose. While this agreement might at first seem to indicate the general applicability of the rule, a moment's consideration will show that nothing could be farther from the truth or a more dangerous conclusion. The maximum variation in the oral to subcutaneous dose ratios in the case of the dog is as 1 :75, and the cat as 1 :25. The rule, given by Cushny, in fact fits no single drug studied on either of these two animals except in the case of nicotin in the cat, and possibly those of apomorphin and ouabain for the same animal. It is hardly necessary to discuss the mean ratios obtained for the guinea-pig and rabbit as these will be taken up later in another connection.

Another point of difference in the ratios of absorption was also brought out in our work, and is one which is not generally appreciated. It is that the ratios of absorption of the same drug in the same animal may be different when the dose is adjusted to the production of different effects. This is illustrated by the case of morphin in the cat. When restlessness is taken as the end-effect to be obtained, the ratio of the vein dose to the intramuscular, subcutaneous and oral doses is as 1 :1 :1 :1, while when the production of analgesia is desired the intramuscular and subcutaneous doses are each about 13 times as great as that by vein, if indeed it is possible to determine a definite ratio for these two methods of administration. Analgesia could not readily be obtained when the drug was given by mouth or rectum. Again, in the case of nicotin on the guinea-pig, death resulted from the subcutaneous injection of 4.4 times the vein dose, and 111 times the vein dose killed the animal when administered orally. But, when the development of convulsions alone was sought, 33 times as much was required by subcutaneous injection as by vein, and even a dose greater than the fatal did not cause convulsions when given by the mouth. Kleiner and Meltzer[5] report somewhat analogous differences in the doses of epinephrin required by different modes of administration to produce glycosuria.

The same drug in the same animal, therefore, may show different ratios of absorption when the doses used are adjusted to the production of different effects.

It is shown in the tables that there is a certain degree of similarity between cats and dogs in the ratios of absorption of any given drug, and what little evidence we have leads us to believe that the absorption of drugs in these animals by the several channels of administration is not widely different from that in man. On the other hand, the rodents form a class by themselves with regard to the absorption from the gastro-intestinal tract of drugs derived from the vegetable kingdom. Among these animals there is apparently a much greater selective capacity for absorption from the gastro-intestinal tract than is the case in the cat or dog. The white rat and the guinea-pig may resist almost completely the absorption from the alimentary tract of a drug which is quite soluble in water, while one which is quite insoluble may be absorbed readily. Thus the oral convulsant dose of the readily soluble strychnin sulphate is 133 times that by vein in the guinea-pig, while only 37 times as much of the insoluble digitoxin is required orally as by vein to kill this animal. White rats do not appear to absorb even traces of the soluble ouabain from the alimentary canal. The literature contains numerous isolated instances showing the variability of absorption from the gastro-intestinal tract of the rabbit; but the guinea-

4. Salant and Rieger: Bull. 148, Bureau of Chem., 1912, p. 59.

5. Kleiner and Meltzer: Jour. Exper. Med., 1913, xviii, 190.

pig is generally much more resistant than the rabbit to absorption from this structure.

Such marked resistance to absorption from the gastro-intestinal tract as frequently occurs among the rodents is encountered in only a few instances among either cats or dogs, that is, in the cases of some digitalis bodies, and of apomorphin to the latter animal. As the result of extended experiments with apomorphin we are led to the belief that the failure to induce emesis after oral administration to the dog is due to the fact that a certain minimum concentration of the drug in the body is required for the stimulation of the vomiting center, that the drug is rapidly eliminated from the circulation and, therefore, that the large oral dose is necessary on account of the relatively slow absorption rather than through any incompleteness of this process. Such an explanation is also probably applicable to the case of most of the vegetable drugs in rodents, for we have evidence of the extremely rapid excretion of certain drugs by these animals. But here we also usually encounter a true marked resistance to absorption, as has been proved to be the case with ouabain in the white rat.

That similar, though less frequent, instances of resistance to absorption from the alimentary canal of readily soluble substances are encountered in man has been shown in our previous paper in the case of strophanthus. We have also observed that certain drugs are absorbed to only a slight degree from the alimentary tract of all the animals used and of man. Striking examples of these drugs are found among the digitalis bodies, as convallaria, apocynum and strophanthus.

It is, therefore, shown that drugs which are readily soluble in water may be absorbed very poorly or not at all from the gastro-intestinal tract of mammals, and, conversely, that drugs which are insoluble in water may undergo rapid absorption from this tract.

It is fairly well known that colloids may impair absorption from any of the channels of administration. This was shown for strychnin[6] and it is brought out in reference to oils in the figures given here for the absorption of camphor. It is seen that absorption of this drug from the alimentary canal of the dog is more rapid than from the subcutaneous tissues, and in the case of the cat than from the muscles also. The same, however, is true if the camphor is dissolved in alcohol, but in this case the cause is probably different and is referable to the prompt precipitation of the camphor in contact with the tissue fluids. This would form a depot in the muscles or subcutaneous tissues, while in the gastro-intestinal tract the drug, though precipitated, would be spread over a large absorbing surface.

The tables show that most substances in watery solution are absorbed most effectively from the muscular tissues, next from the subcutaneous, and least from the gastro-intestinal tract, and that the differences between the subcutaneous and oral ratios of absorption are generally greater than between the intramuscular and subcutaneous. These relations are also brought out in Table 3, in which the absorption times are compared for a few of the drugs used. This observation is not new, and Meltzer and Auer[7] compared the absorption from the subcutaneous and muscular tissues. Our results are merely confirmatory, though they also serve to show that such relations are by no means universal, for we record certain marked exceptions in which the absorption from the alimentary canal of drugs in aqueous or saline solution is quite as complete as from the muscle, although somewhat less rapid.

TABLE 3.—TIME RELATIONS OF ABSORPTION, BASED ON AVERAGES

	Vein	Muscle	Subcut.	Mouth
I. STRYCHNIN SULPHATE				
A. To cats; hyperexcitability.				
Time, minutes	3.8	7.8	18.2	40
Ratio	1	2	4	10
B. To guinea-pigs: convulsion.				
Time, minutes	2	6.5	9.3	36.6
Ratio	1	3.2	4.6	18.3
II. NICOTIN				
A. To cats; fatal dose.				
Time, minutes	3	..	7.7	37.5
Ratio	1	..	2.5	12.5
B. To guinea-pigs; fatal dose.				
Time, minutes	2.8	..	2.5	12
Ratio	1	..	1—	4
III. PICROTOXIN				
A. To cats; time to first symptom.				
Time, minutes	4	12.2	33	19.4
Ratio	1	3	9.5	5
B. To guinea-pigs; to convulsion.				
Time, minutes	5.3	19	25	313
Ratio	1	3.5	4.8	59
C. To rabbits; to first symptom.				
Time, minutes	6.5	..	7	16.5
Ratio	1	..	1+	2.5
IV. CAMPHOR IN OIL				
A. To cats; time to first symptom.				
Time, minutes	..	23.2	179	46.1
Ratio	..	1	7.3	2
V. CAMPHOR IN ALCOHOL				
To cats; time to first symptom.				
Time, minutes	..	199	177	61
Ratio	..	1	0.9	0.3

There are many scattered instances in the literature which show that the fatal subcutaneous dose of each of several drugs is from four to five times that by intravenous injection in rabbits.

In this study we have dealt with the ratios of absorption of the several drugs from the ordinary channels of administration in a number of different animals, and we have not concerned ourselves with the question of the mechanisms which enter into the absorption of the several drugs from the different tissues of the animals. Some studies bearing on this question have been published recently by workers in Sollmann's laboratory.[8]

RECAPITULATION

1. Drugs of the same chemical class show very different ratios of absorption from the different channels of administration in any one class of animals.

2. Drugs of the same chemical class show wide differences in the ratios of their absorption from corresponding channels when different classes of animals are compared.

3. The absorption ratios of different drugs in the same class of animals vary widely.

4. Collective analysis of the ratios of subcutaneous to oral doses in the cat and dog show that the range of variation of the individual instances from the mean is far too great to permit of any generalization. Although the averages of all the ratios would seem to show that the subcutaneous dose is about half as great as the oral, it should be stated emphatically that any generalization would be a source of grave danger in practice.

6. Hatcher, R. A.: Am. Jour. Pharmacol., 1902, lxxiv, 283.
7. Meltzer and Auer: Jour. Exper. Med., 1905, vii, No. 1.
8. Sollmann, Hanzlik and Pilcher: Jour. Pharmacol. and Exper. Therap., 1910, i, 408. Hanzlik, P. J.: Ibid., 1911, iii, 387. Hanzlik and Collins: Ibid., 1913, v, 185.

5. The same drug may show different ratios of absorption when its dosage is adjusted to the production of different effects, even in the same animal.

6. Rodents as a class show much greater selective capacity for absorption from the alimentary canal than do the cat and dog. In some instances they almost completely resist the absorption of drugs which are readily soluble in water, while absorbing an insoluble drug fairly well. Similar resistance to absorption was rarely observed in the cat, dog or man.

7. Rodents also exhibit a marked capacity for the rapid excretion or elimination from the blood-stream of many vegetable poisons.

8. A few drugs resist absorption to a marked degree from the gastro-intestinal tract of all animals so far employed.

CONCLUSIONS

1. Ratios of absorption from the four common channels of administration of drugs have been determined in five mammals, and certain observations with regard to the ratios of absorption in man have been recorded. The drugs used included representatives of several different chemical classes, such as, alkaloids, glucosids, neutral principles, etc.

2. Each drug is a law unto itself in respect of the ratio of absorption from the different channels of administration in any animal.

3. In general, the subcutaneous and oral doses lie nearer to the intravenous dose in the cat and dog than in the rodents.

4. The guinea-pig in general seems far more resistant to the absorption of most vegetable drugs from the alimentary canal than is the rabbit, and vastly more so than are the cat and dog.

5. Certain drugs, very soluble in water, are absorbed slowly, or occasionally not at all, from the gastro-intestinal tract, this being especially marked in the case of the white rat and the guinea-pig.

6. Certain vegetable drugs, insoluble in water, are absorbed readily from the alimentary canals of the cat and dog, and relatively so from those of the rat and guinea-pig.

7. *No rule can be formulated for the calculation of the appropriate dose by one mode of administration from the dose by any other mode of administration. Such determination can be made only by experiment.*

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ABSTRACT OF DISCUSSION

DR. SAMUEL JAMES MELTZER, New York: In answer to Dr. Solis-Cohen's question, about six years ago we experimented on dogs by injecting magnesium sulphate through the rectum. We observed at that time no ill effects from these injections. The number of experiments, however, was too small to justify any definite conclusions from them. Especially, since it is known that inhalation of ether has a considerable influence on the profound effect of magnesium sulphate, such injections may ocassionally, indeed, be not without danger. Furthermore, we have recently learned much more about the nature of the ileoceal valve, and that in some pathologic cases this sphincter is inactive and, therefore, fluid injected into the colon may in these cases perhaps go up into the small intestines. There cannot be much discussion as to the correctness of the results. The action of curare, for instance, is a striking example. It has a fatal effect when given intravenously or even intramuscularly, and it may have no effect whatsoever when given by the mouth. This was established nearly fifty years ago. We have made several contributions showing the striking quantitative difference in the effects between intramuscular and subcutaneous injections. Our recent experience may lead us even to a further distinction between the stomach and the intestines. Many years ago I experimented on animals with the administration of magnesium salts by the mouth and found that it practically had no poisonous effect. Recently in experiments made by Auer and myself we discovered that magnesium salts, injected directly into the small intestines in certain doses and concentrations, may be as fatal for the animal as when given intramuscularly. The point I made has some practical bearing. You will recall that Dr. McCosh advised, some eighteen years ago, the injection of magnesium sulphate into the small intestine after laparatomies, before closing the abdomen. So far as I know this method is still practiced by some surgeons. I have reason for my suspicion that it may have been the cause of a fatal outcome in some cases.

DR. SOLOMON SOLIS-COHEN, Philadelphia: Does Dr. Meltzer make a difference between the large and small intestine concerning the inhibiting effect of magnesium sulphate? Everyone knows that in hospital wards the so-called "triplex enema" of magnesium sulphate in glycerin and water is quite commonly used, and, so far as I know, no accident has occurred in consequence—in fact, experience shows it to be efficacious in emptying the bowel. If there is danger from the introduction of Epsom salt into the rectum or colon or if there is no advantage in the use of that particular salt, that is, if the effect is merely osmotic, however, it would be well to substitute some other saline compound. On the other hand, if it is a question of absorption and quantity, I should like Dr. Meltzer to make that point clear. I am not at all convinced that absorption is exactly the right word to use in describing some or the totality of the phenomena described. Dr. Eggleston pointed out that the ratios representing the comparative effects of the various methods of administration differed considerably according to the special effect which he wished to produce. There is something more than absorption concerned in that; it is a question not alone of active quantity but also of tissue affected. There is selective tissue action, proportional concentration (partial pressure), mass action and many other physicochemical and biologic reactions beside the mere question of the time or rate of the taking up of the substance into the circulating fluids—and this last is what I understand by absorption.

DR. CARY EGGLESTON, New York: We were of course acquainted with the facts concerning the non-absorption of curare and also of the peculiarities concerning the absorption of magnesium sulphate, but the little heed which has been paid to these observations gives all the more reason for our present work. In reply to Dr. Meltzer's remarks on absorption from the gastro-intestinal tract and the division of this tract into several functionally different portions, I would say that the physician usually gives his drugs for absorption from the gastro-intestinal tract by way of the mouth and seldom directly into the intestines, and further, one seldom is dealing with a stenosis of the pylorus such as was artificially produced in Dr. Meltzer's dogs. Our observations were not intended to take into consideration such abnormal conditions, but were directed to a study of the problems encountered in the ordinary administration of drugs. I might call attention to the fact that several deaths have been reported from the absorption of magnesium sulphate from the intact intestine after ordinary oral administration of concentrated solutions. In reply to Dr. Cohen's query: the question is one, not of difference in total quantity administered, but of the ratio between the rate of absorption and that of excretion or fixation, so that with the majority of drugs the type and intensity of action depends on the concentration of the drug in the blood-stream or the tissues at any one moment. This is, however, not always the case, as is well demonstrated by the digitalis bodies. Further, in the case of this group of drugs, we have reason to believe that there is no chemical alteration, for the drug can be recovered apparently in its original form from the tissues of an animal.

THE LOCAL PREPARATION OF PATIENTS FOR OPERATION *

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The ideal operation, from an aseptic standpoint, is one in which every element connected with the procedure is free from germ life. The use of moist heat and formaldehyd gas as sterilizing agents places everything, except the skin, within the realm of the ideal. The use of sterile rubber gloves by the operator and his assistants places them, also, from a practical point of view, within the same realm. The skin of the field of operation alone remains as a subject for thought, study and experimentation.

From the point of view of the artist, the skin is a beautiful, perfectly smooth covering of the framework of the body; from the point of view of the physiologist, the skin is a wonderful regulator of bodily temperature, a marvelous excretory apparatus, a soft, pliable covering which protects the underlying tissues from the corrosive action of the air and of fluids or other substances which might come in contact with it; from the point of view of ideal asepsis, the skin is a structure marred by cracks and crevices and crater-like openings, smeared with a mass of debris, and polluted by innumerable wound-infecting micro-organisms. The cracks and crevices are formed by the natural infoldings of the epidermis and by the constant death and exfoliation of the superficial cells of the epidermis. The crater-like openings are the mouths of the ducts of the sebaceous and sweat-glands and the points of exit of the hairs. All of them are inaccessible hiding-places where germ life not only may, but does, lurk. The debris is composed of the secretions and excretions of the glands, countless broken-down cells, and mechanical dirt. It surrounds bacteria and protects them from the action of many of the chemical agents used to destroy them.

The researches of Welch, of Miguel, of Hohein, of Maggiora, of Leedham-Greene, of Heagler, and of almost numberless others show conclusively that bacteria have constant habitation on or in the skin. These germs are not free on the surface from which they might be removed by the sweep of a brush: they are imbedded in the grease and albuminous matter of the skin's debris; they are in the cracks and crevices between the cells of the superficial layers of the epidermis; they are in the crater-like mouths of the ducts of the sebaceous and sweat-glands; they are on the hairs and in the hair follicles. If the germs on the surface of the skin be removed or destroyed, their places will be taken by their fellows in the deeper layers, the latter being brought to the surface by the constant outward activity of the skin. While this action, ordinarily, will cause reinfection of the surface within from two to thirty minutes, yet it is through this action that the skin may be rendered free from germ life.

To enter the realm of the aseptic ideal, the skin of the field of operation must be free from germ life and must remain so during the course of the operative procedure. This must be proved by both clinical and laboratory results. Many writers have reported laboratory findings that support their assertions that the various methods advocated by them have produced the ideal; the same methods in the hands of other surgeons and investigators have given different results. A perfect laboratory test of the sterility of the skin would demand a study of a piece of the skin. As this procedure is not always feasible, the test made cannot give more than approximate results. Welch passed a silk ligature through the skin; Haeger rubbed the surface of the skin with a silk ligature; Fürbinger scraped the skin with an orange-wood stick; Leedham-Greene used strips of ivory or silk; Schleich stroked the skin with platinum wire. To obtain approximately accurate tests, scrapings of the skin must be imbedded, with certainty, in the culture medium; this practically eliminates all methods of testing which do not leave the scraping instrument buried in the medium. All antiseptics used must be neutralized or removed from the skin before the test is made, because an almost infinitesimal quantity of many antiseptics will be sufficient to prevent development of bacteria. As demonstrated by Leedham-Greene and others, the skin must be moist when the scrapings are taken, because, in a dry condition, the cement substance of the epidermis holds the cells and the bacteria in place to a much greater extent than it does when moist. Tests must be made from fifteen to thirty minutes after the supposed sterilization to prove that active bacteria have not been thrown onto the surface from the deeper layers of the epidermis. To prove conclusively the value of any method, the skin should be infected with an active culture of some resistant, easily recognized, bacterium.

The many methods advocated for sterilizing the field of operation may be grouped into two classes, the wet and the dry, with a combination of these two forming a third. In the first class, the methods attempt to remove from the skin bacteria, broken-down cells, oily and fatty matter, and mechanical dirt, and to destroy any germs that may remain. In the second class, the methods omit any attempt at removal of germ life, mechanical dirt or debris, except through dry shaving, but rather attempt to destroy all germs on or in the skin and to lock up in the cracks and crevices all micro-organisms that have not been destroyed. The third class of methods combines these two ideas.

In the first class, the skin is thoroughly rubbed or scrubbed with hot water and soap and then shaved. The field is again rubbed or scrubbed with soap and hot water, or at times with a combination of castile soap, mustard flour, and corn-meal. The action of the water is that of a solvent and vehicle for the removal of exfoliated cells, mechanical dirt, some of the fatty matter of the skin, and bacteria. The water causes the superficial cells to become more or less engorged or swollen and increases exfoliation. The heat increases the solvent power of the water, acts as a stimulant to the skin, and causes a hyperemia with consequent increased activity of the glands. The soap is used to emulsify the fats on the surface of the skin, to soften the hairs, and to act as a general detergent. The official sapo and sapo viridis, hard soap, soft soap, fluid soap; soap impregnated with pumice or with such antiseptics as mercuric chlorid, mercuric iodid, phenol, boracic acid, salicylic acid, trikresol, etc., are used and each has its advocates. An alkaline soap is necessary for emulsification of the fatty matter, but an excessively alkaline soap will injure the skin if used very freely. The soap should make a good lather so that it may enmesh debris and bacteria and insure their removal from the skin when it is removed. The shaving removes the hairs, which are always surgically

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dirty and which might act as a mechanical hindrance during the operation, scrapes away much of the debris, and opens the mouths of the hair follicles. Improper shaving will cause excoriations of the skin, which should be avoided at all times. The length of time devoted to the rubbing and scrubbing process varies with different surgeons from five to forty-five minutes. The advantage of prolonged mechanical cleansing, with abundant use of hot water and soap, lies in the removal of great numbers of bacteria and debris, many of the former being brought to the surface from the deeper layers through the increased activity of the skin. The objection to prolonged mechanical cleansing, especially when a stiff brush is used, is found in the removal of too many cells with consequent minute excoriations which make the skin much more vulnerable. The mechanical cleansing is followed by the application of antiseptic solutions.

As a result of experience and experimentation, the chemical sterilization of the skin is being limited more and more to the use of alcohol in from 60 per cent. to 80 per cent. strength and solutions of mercuric chlorid, of biniodid of mercury, of iodin (with or without the addition of potassium iodid), and of thymol.

Possibly habit has much to do with the continued use of aqueous solutions of mercuric chlorid. They have been used since the early days of antisepsis, although it has been proved by Harrington, by Post and Nicoll and numerous others, that the solutions used have practically no germicidal value in the time the germs are exposed to their action. Post and Nicoll conclude from their experiments that watery solutions of mercuric chlorid "are absolutely ineffective where prompt disinfection is required, as in the disinfection of the hands and fields of operation." The mercuric chlorid coagulates albumin. Aqueous solutions have slight, if any, power of penetration into the deeper layers of the epidermis.

Alcoholic solutions of mercuric chlorid are much more efficient than aqueous, and markedly so when used on a dry skin. When the solution is acidulated, as advocated by Harrington, it has still greater germicidal power. Harrington's solution will destroy all ordinary germs in from thirty seconds to two minutes. It is painfully irritating to the skin and for this reason should be used only after the patient has been anesthetized. It should be removed within a minute or so by washing with 70 per cent. alcohol.

Watery solutions of biniodid of mercury, especially when combined with potassium iodid, are much more efficient than the same strength solutions of mercuric chlorid. This combination does not coagulate albumin, but requires from ten to thirty minutes to destroy germ life. Alcoholic solutions of the biniodid are much more efficient than the aqueous.

Alcohol, chemically pure, as shown by Koch, has no germicidal power; Sternberg's experiments show that 95 per cent., also, is without germicidal effect. Post and Nicoll claimed germicidal power in solutions as weak as 30 per cent.; Leedham-Greene, after a long series of experiments, concluded that the greatest germicidal power was found in strengths of from 60 per cent. to 70 per cent. Alcohol has the power to penetrate into the cracks and crevices of the skin, as claimed by Braatz, through its ability to decompose and remove small particles of air that may be present. Its penetrating power is much greater on a dry than on a wet skin. Alcohol hardens and fixes the superficial cells of the epidermis. As a solvent or vehicle for the various antiseptics used on the skin, it is vastly superior to water, the alcoholic solutions penetrating more deeply and having greater germicidal power than the aqueous. The alcoholic solutions are more efficient when made with 70 per cent. alcohol than with 95 per cent.

Since the original paper of Grossich appeared in 1908, iodin has been lauded by surgeons far and wide as the chemical which would place the skin of the field of operation in the realm of ideal asepsis. Grossich's method is to shave the part dry and paint it with a 10 or 12 per cent. solution of iodin in alcohol. He insisted, and his conclusions have been confirmed by the studies of others, that the skin must be dry when the iodin is applied; that the presence of water prevents penetration of the iodin because the water macerates the epidermal cells and causes them to swell, thus plugging up the cracks and crevices and openings in the skin. Iodin applied to a wet skin has a tendency to cause suppuration and blistering. The original method of Grossich has been modified by others, the strength of solution being changed considerably, a fractional sterilization being instituted, and the application of iodin being made on a dry skin after it had been shaved and thoroughly scrubbed.

Aqueous solutions of iodin are less efficient than alcoholic. Solutions made with 70 per cent. alcohol have greater germicidal power than those made with 95 per cent. The addition of potassium iodid makes the solution much more stable and enhances the germicidal value. The official tincture of iodin, containing 7 per cent. iodin and 5 per cent. potassium iodid in 95 per cent. alcohol, is increased in germicidal power by diluting with one part water to four parts tincture.

Iodin in benzene, 1:1000, as a preliminary wash for the skin, followed by the application of a 3 per cent. solution of iodin in alcohol, is lauded by some surgeons. The benzol acts as a "solvent which dissolves and carries into solution all of the oily or waxy substances found normally on the skin, in its various crevices and appendages." Zanetti advises the use of a saturated solution which contains 9.75 per cent. iodin.

A 5 per cent. solution of thymol in alcohol has distinct antiseptic powers, but it is not markedly germicidal. Its use is advocated because it can be used on a wet or dry field without increasing the dangers of suppuration and blistering as iodin does on a wet skin.

To remove fatty matter, act as a germicide, and aid in drying the skin after the use of the wet methods, washing with ether is resorted to. It does not dry the skin sufficiently to allow the immediate application of iodin.

In the second, or dry, class of methods, the field of operation is shaved dry and is then painted with an alcoholic solution of iodin or rubbed with a 1:1000 solution of mercuric chlorid in 70 per cent. alcohol. Two or more applications of either may be made, time being allowed between the applications for thorough drying. In this class of methods, attempt is made to kill all germs with which the agent comes in contact, and so harden and contract the superficial cells of the epidermis that all remaining germ life may be prevented, effectually, from reaching the surface of the skin. To aid in obtaining this result, the skin may be covered with adhesive rubber dam, as advised by Murphy, or painted with a special varnish, as advised by McDonald.

A combination of the methods consists in the use of the wet from ten to twelve hours before operation and the application of the dry eight to ten hours later, followed by a second application after the patient has been placed on the operating-table.

The proper application of these methods will afford a field of operation that will be sufficiently sterile to allow healing *per primam* in a very large majority of cases, the natural resistance of the tissues being capable of overcoming the activities of the remaining micro-organisms. None of the germicides mentioned will destroy, with certainty, all germs on or within the skin. It may be rendered free from germ life, however, if the powers of Nature are called into play. It is well recognized that few infected wounds are seen in those who bathe frequently, or in those whose occupation causes sweating. In both instances the skin is kept more active and actually cleansed by being washed from within outward. During health there is never-ceasing exfoliation of epidermal cells and unremitting excretion and secretion of the products of the sebaceous and sweat-glands. By stimulating this activity of the skin it is possible to have it wash itself so free from germ life that it will remain sterile until infected from without.

In several tests made at the German Hospital (and I wish to take this opportunity to thank the members of the resident staff for the interest and aid given me in making the tests), the only perfect results were obtained in those cases in which the skin had been washed from within outward by the forces of Nature. In these tests scrapings of the skin were taken with orange-wood sticks or mother-of-pearl strips roughened, the wood or pearl strips being imbedded in liquefied agar or bouillon and incubated for ninety-six hours.

In one series of tests, both wet and dry methods were used. The chemical agents used were neutralized or removed. Tests were made before and after neutralization. Practically every test made before neutralization gave no growths; after neutralization, more than 60 per cent. gave growths. The various fields were then protected by sterile coverings and another test was made thirty minutes later. In one instance in which iodin had been used according to the dry method, and in one in which the skin had been scrubbed with mustard flour, no growths were obtained. In every other instance of this series of about eighty-five tests, a growth was obtained, the natural activity of the skin having brought to the surface active bacteria from the deeper layers of the epidermis.

In another series of tests of the hands, the number of bacteria obtained from the surface decreased with succeeding operations, the hands being scrubbed and incased in sterile rubber gloves between each two operations. After the seventh or eighth operation the skin of the hands of the operator was sterile and remained so until contaminated from without. The decrease in the number of bacteria found was proportionate to the activity of the hands of the person tested, the operator showing the greatest decrease, the first assistant the next decrease, etc.

In another series, the skin was thoroughly sweated by exposure in a steam bath or in a hot-air oven. After the sweating the skin was washed with sterile water and soap and was then tested. Twelve per cent. of these tests gave no growth after ninety-six hours' incubation.

In another series, cataplasma kaolini, as made at the German Hospital, was applied hot to a wet-shaved part and allowed to remain in place twelve hours. It was then removed and the field was washed with soap and water and tested. Another application of the cataplasm was then made and the same procedure carried out at twelve-hour intervals for forty-eight hours. The skin was then protected by a dry sterile covering and again tested after a twelve-hour interval. In this series, 100 per cent. of the tests gave growths at the end of twelve hours; 50 per cent. gave growths at the end of twenty-four hours. No growths were obtained in any instance after the twenty-four-hour test. The cataplasma kaolini, as made at the German Hospital, consists of 50 per cent. glycerin and 50 per cent. of kaolin combined with a negligible quantity of flavoring-matter and antiseptics. In this application, advantage is taken of the heat which is retained by the cataplasm for a considerable period of time and of the power of the glycerin to abstract fluids from the tissues, which, according to Cushny, is due to its great avidity for water. The combined action of the heat and the glycerin is to cause such an outpouring of fluids from the skin that it literally washes itself and frees itself from all germ life.

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PITUITARY EXTRACT

AN EXAMINATION OF SOME COMMERCIAL PREPARATIONS MADE FROM THE POSTERIOR LOBE OF THE PITUITARY BODY*

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Among the numerous therapeutic agents which have been introduced into medicine within the last few years is pituitary extract, an aqueous decoction of the small structure known as the pituitary body, which lies at the base of the brain. This important structure is enclosed in the bony cavity of the sphenoid bone, the sella turcica; when it is extirpated death soon results or when it is invaded by new growths marked metabolic changes occur.

The pituitary body, or as it is more often termed the pituitary gland, is a neuroglandular structure which in the higher animals is composed of two main parts, an anterior or glandular lobe, and a posterior lobe, the "pars nervosa," which contains nervous tissue mainly. The posterior lobe is small in comparison with the anterior lobe and has surrounding it an epithelial covering, the "pars intermedia," which separates it from the anterior lobe.

In its development it is seen to have a double origin, the anterior part and pars intermedia arising from an upgrowth of buccal ectoderm (Rathke's pouch), which meets a prolongation of neural ectoderm from the anterior brain vesicle. As development proceeds, the buccal ectoderm gradually envelops the projecting neural ectoderm like a pouch, the prolongation thus enclosed later becoming the posterior lobe. During the development of the sphenoid bone the mass of buccal ectoderm becomes enclosed in it and almost obliterates the space between the buccal pouch and neural ectoderm.

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While the function of the pituitary body is not fully known, certain facts have been established either by injecting extracts of its various parts into animals, or by extirpating its lobes and noting the symptoms arising therefrom. The first work of a strictly physiologic nature was done by Oliver and Schäfer[1] in 1895. They found that intravenous injections of pituitary extracts into animals caused a prolonged rise in the blood-pressure which they concluded was due to a peripheral constriction of the arterioles, together with an increase in the activity of the heart. Howell[2] later showed that the effects described by Oliver and Schäfer were due to posterior lobe principles, the anterior lobe extracts being inactive. Magnus and Schäfer[3] described a diuretic effect from posterior lobe extracts and called attention to the unequal constriction produced on the peripheral vessels, the kidney vessels dilating when the pressure rises. Cramer[4] observed mydriatic effects from posterior lobe extracts. Pituitary extracts were found by Borchardt[5] to cause glycosuria. While working on ergot, Dale[6] noticed a contraction of the cat's uterus when pituitary extracts were given intravenously. He later showed that posterior lobe extracts stimulate all involuntary muscle directly and that no true immunity was produced by repeated injections of the extract. Ott and Scott[7] found that in goats during the early nursing period intravenous injections of posterior lobe extracts would greatly increase the secretion of milk. Feeding both the fresh and dried pituitary substance to animals has been done by a number of investigators, but no positive conclusions can be drawn from the work thus far done.

As stated before, the pituitary body is essential to life. Marinesco[8] first showed that extirpation of the pituitary body in cats was followed by death in a very short time. Results of a contradictory nature to those of Marinesco were reported by a number of observers, but owing to the fact that the technic for the removal of the pituitary body was unsatisfactory up to the time of Paulesco's work, previous results must necessarily have little value. Paulesco[9] showed not only that the extirpation of the whole pituitary body was fatal, but also that the anterior lobe alone was responsible for this termination, removal of the posterior lobe giving negative results. By manipulation of the hypophyseal stalk, Goetsch, Cushing and Jacobson[10] could produce a transient hyperglycemia which would for the next few days result in a lowering of the assimilation limit for injected carbohydrates. If a permanent insufficiency of the posterior lobe secretion were produced, the temporary lowering of the assimilation limit would be followed by an abnormal augmentation in the tolerance for sugars, which could promptly be lowered by the subcutaneous injection of posterior lobe extract. There was also a tendency toward the production of generalized adiposity. Repeated injections of posterior lobe extract in the normal animal were apt to lead to a profound degree of emaciation together with a lowered carbohydrate tolerance.

The introduction of pituitary extract into therapeutics was brought about by Bell and Hick,[11] who first suggested it as a uterine stimulant. They also advocated its use in cases of shock and in paralytic distention of the bowel. Bell[12] later found that the extracts seemed to act more efficiently when there was considerable atony and paresis than in normal conditions. Since the work of these investigators, pituitary extract has been extensively studied clinically. Foges and Hofstätter[13] found "Pituitrin" especially valuable in post-partum hemorrhage. Klotz[14] reported remarkably successful results from it in the treatment of rickets. Spire and Parisot[15] obtained good results from an extract of the whole gland in delayed labor and in causing micturition in retention. Citelli[16] used it to prevent operative hemorrhages of the upper air-passages. Ever since the association of acromegaly with disease of the pituitary body, extracts of the whole gland have been administered for that condition on the theory that the disease was due to a deficiency of normal secretion, the results of its use being as a rule indefinite.

In striking contrast to the earlier clinical reports of its use in labor are those of more recent origin. Herz[17] reported a case of rupture of the uterus after "Pituitrin" administration, the os having been partially dilated at the time of its use. Rongy and Arluck[18] after a very extensive clinical experience with "Pituitrin" in obstetric practice, have concluded that extravagant claims were made for it in the induction of labor, and that it should never be used unless a general anesthetic is within easy reach, for the contractions may become so violent that rupture of the uterus is imminent. They personally knew of two cases of rupture of the uterus which resulted from its use. Sheffield[19] has reported a case of poisoning to the new-born from pituitary extract apparently through its mother's milk. Other observers have reported the occurrence of collapse, tetanus of the uterus, asphyxia of the child, and premature separation of the placenta after pituitary extracts.

Either anterior, posterior or whole-gland preparations are used in therapeutics. They can be given by any of the usual methods of administration, although the subcutaneous method is to be preferred. Biedl[20] has described unpleasant symptoms as a result of their intravenous use, namely, nausea, accompanied by the desire to micturate and defecate.

From this short survey of the clinical literature it will be seen that while infundibular extract is relatively non-toxic it does possess a high degree of toxicity in certain cases and so extreme caution should be taken in its administration. It likewise becomes very essential that pituitary preparations be standardized to insure constancy in their dosage.

Little is known concerning the chemical nature of the pituitary body. Various substances have been isolated from either the whole gland or posterior lobe

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12. Bell, W. B.: Brit. Med. Jour., 1909, ii, 1609.
13. Foges, A., and Hofstätter, R.: Centralbl. f. Gynäk., 1910, xxxiv, 22, p. 1500.
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15. Spire, A., and Parisot, J.: Jour. de méd. de Paris, 1912, xxxii, 375.
16. Citelli: Ztschr. f. Laryngol. u. Rhinol., 1913, vi, 525.
17. Herz, E.: Centralbl. f. Gynäk., 1913, xxxvii, 720.
18. Rongy, A. J., and Arluck, S. S.: New York Med. Jour., 1914, xcix, 878.
19. Sheffield, H. B.: Am. Jour. Obst., 1914, lxix, 379.
20. Biedl, A.: Innere Sekretion, Ed. 2, ii, 153.

extracts; but while they may be regarded as active substances they are not generally regarded as the active principle in the same sense as epinephrin represents the activity of the medulla of the adrenal gland.

No generally accepted method of evaluation exists for the determination of the activity of posterior lobe extracts, but two physiologic methods have been suggested which are now used to a limited extent, namely, the determination of the effect on the blood-pressure and the effect on the isolated uterus, the former method being an application of the well-known physiologic method used in the standardization of epinephrin, while the latter is an equally well-known method which is in use in certain laboratories for the biologic assay of ergot. The credit for the application of the former to pituitary standardization properly belongs to Hamilton,[21] for the latter to Dale and Laidlaw.[22] These two methods, therefore, were used in the examination of the preparations which are reported in this paper.

For the determination of the rise in the blood-pressure dogs were used, the method being similar in every respect to that employed for the physiologic assay of epinephrin. The dogs varied in weight from 5 to 10 kg. They were anesthetized with chlorbutanol (0.45 gm. per kilogram per stomach), the vagi were cut, and the injections were given either by way of the external jugular or femoral vein. Artificial respiration was employed in all of the experiments. The pressure readings were taken from the carotid artery.

Inasmuch as there is no standard required, the standard selected against which all the others were tried was one of the strongest preparations. As a rule only one preparation was compared with the standard in a single experiment. Various dilutions were tried, and when a dilution of the sample under consideration was found which would produce the same rise in the blood-pressure as that of the standard, a ratio was then established and the relative strengths of the two preparations would be determined. For example, if 6 c.c. of a 1:10 dilution of a certain preparation produced the same rise in pressure as 6 c.c. of a 1:50 dilution of the standard, the sample examined would be one-fifth as strong as the standard. In many respects the blood-pressure tracing resembles that caused by epinephrin. In the dog, if a small dose of infundibular extract is injected intravenously, there results a prompt rise in the blood-pressure which is well sustained, usually for from five to fifteen minutes, but occasionally the return to normal does not occur for half an hour. If a second injection be given shortly after the first there is a diminished response, the rise being less than before. This can be overcome to a certain extent by allowing about half-hour intervals between injections and by using small doses. An injection given when the blood contains a large amount of the extract, such as occurs toward the end of an experiment, may produce a slight fall instead of the usual rise.

In the isolated uterus method a uterine segment from a 275 to 350 gm. virgin guinea-pig is selected and placed in oxygenated Locke's solution kept at 39 C. (102.2 F.). One end is made fast to a stationary glass rod and the other to a light straw writing-lever. After about half an hour rhythmic contractions appear and a record of the contractions is then obtained on a slow-moving smoked writing surface.

For use as a standard a 1:20,000,000 solution of beta-iminazolylethylamin hydrochlorid was used which was obtained from the Hoffmann-La Roche Company. This is a histidin derivative which in a very dilute solution causes contraction of the isolated uterus. A 1:1,000 solution of it was made, put into sterile ampules which held a little over 1 c.c. of solution and subsequently sterilized fractionally. A fresh 1:20,000,000 solution made from the sterilized 1:1,000 solution was used as a standard in each experiment. The contraction which was caused by the specimen to be examined was compared with that caused by the standard. Various dilutions were tried until one was found that produced the same contraction as that caused by the standard. If a 1:10,000 dilution of one sample and a 1:2,000 dilution of another produced the same contraction as that caused by the standard, the former would then be considered to be five times as strong as the latter.

By these two methods six samples which were obtained from six different manufacturers were examined. They will be designated as Samples A, B, C, D, E and F. They were all purchased on the open market and in original packages. The preparations were liquid and were made from the posterior or infundibular lobe. They were dispensed in sterile glass ampules containing from 1 to 1.3 c.c. of a clear liquid which was acid to litmus except in the case of Sample E, which was alkaline to litmus. Sample A contained as a preservative 0.005 gm. of chlorbutanol in each cubic centimeter.

By the blood-pressure method the samples gave the relative values shown in Table 1. Sample E was practically devoid of pressor effect on the circulatory system even when large amounts were given, so that it was impossible to standardize it by this method.

TABLE 1.—RELATIVE VALUES OBTAINED BY THE BLOOD-PRESSURE METHOD

Sample	Ratio as Compared with Sample A
A	15
B	15
C	3.8
D	1
E	?
F	7.5

By the isolated uterus method the relative values were obtained as indicated in Table 2.

TABLE 2.—RELATIVE VALUES OBTAINED BY ISOLATED UTERUS METHOD

Sample	Concentration Necessary to Produce a Contraction Equal to that Caused by the Standard	Ratio
A	1:15,000	7.5
B	1:15,000	7.5
C	1:7,000	3.5
D	1:2,000	1
E	1:2,000	1
F	1:8,000	4

When a comparison of the two methods is made it is seen that Samples A and B are the strongest by both methods and that D and E are the weakest. A wider difference between the samples is shown by the blood-pressure method than by the isolated uterus method.

The reason for such great variability in the activity of the preparations is quite obscure. A possible cause for this variation might be found in the fact that the infundibular substance was collected from various animals. On inquiry it was found that A, B, C and E were collected from cattle, and D from sheep and cattle, while F was obtained from horses and cattle. This

21. Hamilton, H. C.: Jour. Am. Pharm. Assn., 1912, i, 1117.
22. Dale, H. H., and Laidlaw, P. P.: Jour. Pharmacol. and Exper. Therap., 1912-1913, iv, 75.

might account for the variation between A and F, for example, but not for the marked difference in activity between A and E, since these two preparations were both made from cattle pituitary. In the case of Preparations A, B, C and E, two possibilities suggest themselves: either the methods of manufacture differed radically, or the pituitary substance itself possessed great variability.

CONCLUSIONS

1. Attention is directed to the wide variability that exists in the activity of commercial pituitary extracts.
2. The use of beta-iminazolylethylamin hydrochlorid in 1:20,000,000 dilution is suggested as a standard for use on the isolated uterus of the virgin guinea-pig.
3. The blood-pressure method shows a wider range of variability than does the isolated uterus method for the comparison of the relative activity of pituitary extracts and is not applicable to all preparations.

Hygienic Laboratory.

ABSTRACT OF DISCUSSION

DR. SOLOMON SOLIS-COHEN, Philadelphia: These studies are of great importance not only clinically but also as a question of public policy, namely, the establishment of a standard for pituitary preparations which can be incorporated in the forthcoming revision of the United States Pharmacopeia. The commercial preparations vary in activity not only as compared with one another, but also as regards the product put out by any one manufacturer at different times. Was only one set of specimens examined from each manufacturer or were preparations tested which were produced at different times? I have used these preparations for a number of years and believe that this variation accounts for some therapeutic failures. A definite and authoritative standard is necessary, so that, knowing what to expect from a given preparation, we can better regulate the dosage both in quantity and in time. Further, did Dr. Roth find any distinct tendency toward the production of immunity? In the observations I reported some years ago on the effect of preparations of the posterior pituitary lobe, I found that when it was administered by the mouth no antibody could be demonstrated in the blood, but when it was given by hypodermatic injection over a period of several days, an antibody finally appeared. The tests were made by experts in laboratory technic. This is a clinical fact to be considered, especially with regard to dose, to time and therapeutic effects.

There are two groups of cases in which I have had gratifying results: first, in certain forms of angioneuroses, angioneurotic edema, urticaria, asthma, etc., and in that greatest of all autonomic disorders, Graves' syndrome—miscalled exophthalmic goiter, or hyperthyroidism—also in true hyperthyroidism; secondly, in acute lobar pneumonia, in which I now use it almost routinely. I should be loath to treat a case of either croupous or catarrhal pneumonia without having a trustworthy preparation at hand. At Jefferson Hospital we made some comparative observations of three or four different products and also compared them with epinephrin in their clinical effect on separate patients and on the same patient from time to time—both in cases of active pneumonia and on convalescents apparently normal. We did not find, in the preparations we were using then, any considerable difference in effect—that is, in elevation of systolic blood-pressure—between two American preparations and one foreign; nor did we find any material difference between the actual rise of blood-pressure caused by the use of the pituitary preparations and that caused by the epinephrin solution; but we did find that the pituitary effect was more lasting. Still another important clinical use of the pituitary preparation is in the control of tympanites. I have not often used it in typhoid fever because I do not see much tympanites in typhoid under my routine use of the cold-water abdominal coil, but in the tympanites of pneumonia it has proved useful frequently. A large dose is necessary and must be repeated promptly and sufficiently often. In routine treatment the pituitary preparation is repeated every three or four hours as indicated by the blood-pressure, but when tympanites has developed it should be repeated hourly or even half-hourly for three, four or more successive doses, intramuscularly or hypodermatically. In some cases of chronic urticaria the use of the pituitary preparation once a day is sufficient. In others it must be used three or four times daily for a week or more.

DR. GEORGE B. ROTH, Washington, D. C.: It seems as though there is a mixture of substances in pituitary extracts. Now the preparations A (American) and B give very little depressor effect. This depressor effect is difficult to obtain from A and B while it is easy to get from D and E (foreign) so that they would show a qualitative difference. With regard to Dr. Cohen's question: I am more familiar with the literature than my paper indicates and I know of his work. As to immunity—the uterine segments do not all react in the same way and it appears as though some possess immunity; also some dogs react to a less degree to these extracts than other dogs but as to the animals being immune I can not say. In the uterine-segment method, however, with repeated administrations you get rather an increased irritability. Duplicate tests were made in a, c, d, e and f but not in b. Some of the duplicate preparations were obtained about two months apart and showed the same activity.

A CASE OF MYIASIS AURIUM ACCOMPANYING THE RADICAL MASTOID OPERATION *

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The following case is thought to be of sufficient interest to justify a brief report:

L. H., aged 14, is a student in the Pennsylvania Institution for the Blind in Philadelphia. When 4½ years of age, following scarlet fever, he lost the sight of both eyes and developed a double chronic suppurative otitis media, which in time destroyed the hearing in his right ear and so impaired that of the left that the loud-speaking voice could be heard only at a few inches' distance. He has been under my care for the last five years, during which time the discharge of pus has not materially decreased; for during vacation time in summer he is accustomed to go to his home in the country, where he gets no treatment or care at all and so loses what improvement he has made during the winter.

A radical mastoid was proposed several times, although not urged on account of his blindness and the very little hearing power remaining. It was always refused until this summer, when symptoms of cholesteatoma became marked and consent to the operation was finally obtained. At the time of the operation, which was done in the Pennsylvania Hospital, the mastoid process was found to be extensively excavated by cholesteatoma and a sinus had opened from the enlarged cavity of the antrum into the posterior wall of the external canal. Ossicles and tympanic membrane had long since disappeared, and a thorough and carefully complete radical operation was done. The posterior incision was closed completely and the cavity packed through the meatus with plain sterile gauze. Aseptic technic was careful and painstaking throughout. As the boy made a good recovery from the ether and the temperature was normal, the packing was not removed until the third day. On the removal of this packing there was a bad stench and some forty or fifty small maggots came away with the gauze or were washed out immediately afterward. The ear was this time packed with iodoform gauze, which was changed

* Read at the meeting of the Philadelphia Laryngological Society, Oct. 29, 1912.

daily for a week and then omitted altogether, and no more larvae were seen, the patient making an uneventful recovery, with hearing, for a time, at least, very much improved.

The patient had spent the summer on a farm in central New Jersey, sleeping practically out of doors and living in a very rough fashion, and entered the hospital Thursday, Aug. 22, 1912, being operated on Friday, so that I had not seen him personally since the preceding June, until on the operating-table. The ear had been douched in the ward without any maggots being discovered, nor were any seen at the time of the operation.

I suppose that most otologists of experience have seen cases of myiasis or maggot infection of the middle ear or external canal among dispensary patients in whom there has been great neglect of cleanliness, although it seems to me that they are less frequent than formerly, it having been several years now since one came under my observation. The only interest in the case here reported lies in the fact that it accompanied the radical mastoid operation, and the query as to how it occurred.

According to Gould,[1] the term "myiosis" was first applied by Hugo Summe to diseased conditions produced by the presence of the larvae of dipterous (two-winged) parasites. It is known in the East as peenash. Gould further states that "myiasis" is a corruption.

An inquiry addressed to the Bureau of Entomology, Department of Agriculture, brought the information that, in all probability, the infection in this case was caused by the so-called Texas screw-worm fly (*Lucilia macellaria* or *Compsomyia macellaria*), and the report stated that "this fly often deposits its maggots in open wounds and even in the noses of persons sleeping, especially of those afflicted with purulent catarrh. It also lays its larvae upon wounds on cattle, especially in the West."

Lucilia macellaria (Robineau-Dessoidy, 1830), or Texas screw-worm fly, has its habitat from Canada to Argentina, but its ravages are most common in the West and South. Its genealogy[2] is as follows: Tracheata, Hexapoda (six-footed insects), Diptera (Two-winged), Muscidae (house-fly and its allies).

These flies are divided into two classes by Blake,[3] who in 1872 reported three cases of myiasis aurium. One was due to the larvae of *Muscida sarcophaga*, and two to those of *Lucilia macellaria*. He describes the first as being of the viviparous variety in which the young are brought forth alive, while the second two are oviparous, in which the larva is hatched from the egg deposited by the parent fly.

Britton[4] in 1883 stated that the larvae of the screw-worm fly are fleshy, footless grubs which require moisture for their hatching and development. The eggs are deposited in wounds or decaying animal-matter. When deposited in living bodies, very severe symptoms may ensue from the boring of the larvae into the tissues by means of the nippers which are attached to the head and from which they take their name. Even bone may be pierced in this manner. Many cases of human myiasis have been reported from South America since the disease was first noted by Azosa. The most common places for the deposit of the eggs, according to these reports, are the noses and mouths of sleeping persons.

1. Gould, G. M.: Dictionary of Medicine, 1900.
2. Insects Affecting Domestic Animals, Bull. 5, Bureau of Entomology, Dept. of Agric., 1896.
3. Blake, C. J.: Three Cases of Myiasis Aurium, Arch. Ophth. and Otol., 1872, ii, No. 2.
4. Britton, J. B.: Tr. Southeast Kansas Dist. Med. Soc., 1883.

The grub of the screw-worm fly, according to Richardson,[5] is one of the smaller species. From three to four hundred eggs are deposited by the parent fly at one time and in a few moments. These eggs are cylindrical, about 1 mm. in length, and white. It is said that they hatch in from one to twelve hours, and that no living larvae are deposited. Richardson describes the larva as being a whitish, footless, slender and very active maggot that matures in five or six days. The pupal stage is passed in the ground in which it has buried itself, and from which it emerges in from nine to twelve days as the mature imago or fly. The larvae of this fly are very similar to those of the *musca domestica* or common house-fly, as pointed out by Skinner.[6] He states also that the term "fleshy" used above is in contradistinction to the "skin-like covering" that some forms of maggots possess.

In reviewing this case of myiasis in the cavity of a radical mastoid operation, several difficulties are at once encountered. Of course the point of interest is, How came the maggots where they were found? My first thought was that the wound must have been infected at the time of operation, or that the dressings were infected. That this was not so I was soon convinced for the following reasons:

1. The operating-room was carefully screened and no flies were observed.

2. Had there been any they could not have ovideposited during the operation.

3. Flies never ovideposit on such substances as sterile dressings, always selecting putrid or decaying material in order that the young, when hatched, may have a supply of food at hand.

If, as seemed likely, the eggs were received while the patient was sleeping in an unscreened hut in the country immediately before his arrival in the hospital, they would have hatched into larvae before the time of the operation, and if so, where, with the painstaking technic employed, could forty or more of them, either eggs or maggots, small though they might be, have been hidden? Nowhere but in the nose, nasopharynx or eustachian tube, I should think, and from there, they might have migrated to the wound cavity; but this theory is not very satisfying. Even if the eggs were laid after the patient's arrival in the ward and but an hour or two before operation, it is hard to see how so many could have escaped to develop subsequently. That they could not have been deposited after the dressings were applied is almost certain, as the fly could not have penetrated the usual well-bandaged gauze dressing, nor would there have been much incentive for her to do so. I find that it is a common belief that one maggot can multiply itself into numbers without going through the full cycle of its life-history. If this were true the presence of these parasites in the numbers found could be easily accounted for, but needless to say, this theory is a myth.

In a search of the literature no similar case could be found, and but few references to the subject of myiasis in general, the standard text-books either omitting all mention of it or dismissing it in a few words. And as it will undoubtedly be a much more rare disease in the future than it is even now, it was thought that this brief report would not be without interest.

1736 Pine Street.

5. Richardson, Joshua: Screw-Worm Fly and its Ravages, Med. Month., Peoria, Ill., February, 1883.
6. Skinner, H.: Life-History of Some American Insects that Carry Disease, Pennsylvania Med. Jour., September, 1912.

HARMFUL EFFECT OF CERTAIN SUGAR-CANE PRODUCTS

A PRELIMINARY REPORT

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Many dietary experiments have been made for the purpose of determining whether or not the use of cane-sugar is deleterious. The results of these experiments have failed to prove that any harmful effect follows what is termed a moderate use of sugar. Such experiments, however, should not be applied to the effect of sweet foods in general, because they do not take into consideration certain other derivatives of sugar-cane which are present in brown sugar, yellow sugar and sugar-cane sirup and are consumed in the form of candies, cakes, soft drinks and sirups.

We find nothing in medical literature bearing directly on this point. The writers who have observed harmful effects following the use of sweet foods have not specified the particular form of sweet, but have referred to them as a class. Deeks,[1] writing from the Canal Zone, made a wholesale condemnation of "sweet and starchy foods," especially as to their use in the tropics. Kerley[2] of Brooklyn reported on seventy-eight patients whom he termed sugar susceptibles, characterized by recurrent or persistent forms of the following diseases: head-colds, bronchitis, asthma, vomiting, urticaria, rheumatism, chorea and eczema. His treatment of these cases consisted mainly in the entire exclusion from their diet of everything containing sugar.

In 1912, while making a study of the dietetic habits of patients suffering with chronic stomach and intestinal disorders, I was much impressed with the following case history:

B. C., man, aged 34, traveling drug salesman, states that at the age of 8 years he suffered an attack of what was termed delirium tremens which was attributed to the use of brown sugar. His father, a grocer, had allowed him free access to the sugar-barrel and for some time he had been eating it freely between and during meals. The attack of delirium lasted three or four days and was so violent in character that he had to be "held in bed." Following this he was not allowed to have any more brown sugar and has not had a recurrence of the delirium.

This history suggested to me that the unrefined or partially refined products of sugar-cane contain some poisonous or deleterious substance which, being non-crystallizable, is not present in the fully refined product, granulated sugar.

EXPERIMENTAL ADMINISTRATION OF SUGAR-CANE SIRUP AND GRANULATED SUGAR

In order to determine the effect of these non-crystallizable solids of sugar-cane when taken regularly as a part of the diet, the experiment of feeding sugar-cane sirup to a dog was made. A cheap grade of this sirup was selected because it contains the highest percentage of the sugar-cane extractives and the lowest percentage of sugar, most of the latter having been removed in the process of refining. At first only a small amount of the sirup was given, three times a day, but this was gradually increased, thus developing a sweet habit in the same manner that it is developed in a human being; no attempt was made to force the consumption of sirup beyond what the appetite of the animal seemed to demand. Throughout the experiment as much other food was given as the dog would eat. It will be seen that an experiment of this kind differs very materially from those dietetic experiments in which an animal is allowed only a single article of food, as rice, corn, oils, etc., and in which the question of dietetic imbalance, especially protein starvation, must be considered.

During the same time that one dog received the sirup, another dog was given an equal amount of sweet in the form of granulated sugar. Both dogs were given a generous and well-balanced diet in addition to their sweet ration. The object in giving the one dog sugar-cane sirup and the other granulated sugar was to compare the effect of the two forms of sweets; also, in case harmful results followed the administration of the sirup but not the sugar, such results could not be attributed to the mere addition of sweet food to the dog's diet or to an unbalanced diet, but to some ingredient of the sugar-cane.

DETAILS OF EXPERIMENT

Two female puppies from the same litter, 6 weeks old and weighing approximately 2 pounds 14 ounces each, were selected for the experiment.

Dog 1 was given, three times a day, 1 dram of a cheap grade of sugar-cane sirup, mixed with other food. This was gradually increased until at the end of the second month 4 drams was being given three times a day; from this time on the amount was increased only slightly, and after the third month the amount of sirup given daily averaged slightly less than 2 ounces.

Dog 1 on left; Dog 2 on right.

Dog 2 was given the same amount by measure of cane-sugar. Making allowance for the water in the sirup, the amount of solids in the two forms of sweets was about the same.

The experiment was continued six months.

Effect on Weight.—At the beginning Dog 1 did not gain weight as rapidly as Dog 2, and at the end of two weeks the latter was 13 ounces heavier (the first dog, 3 pounds 10 ounces, the second dog, 4 pounds 7 ounces). Dog 1 then began to gain more rapidly and at the end of the first month their weight was the same (7 pounds 8 ounces). At the end of the tenth week Dog 1 was slightly heavier (Dog 1, 8 pounds 9 ounces, Dog 2, 8 pounds 6 ounces). From this time on to the end of the experiment, Dog 1 gained more slowly than Dog 2, and at the end of the sixth month there was more than 3 pounds difference in weight (Dog 1, 18 pounds 5 ounces, Dog 2, 21 pounds 12 ounces).

Effect on Bowels.—Moderate looseness of the bowels was noted in Dog 1 during the first few weeks but without any considerable change in the character of the movements. Later the movements became decidedly abnormal in character and by the end of the second month they were liquid or partly liquid, generally dark gray and offensive, from two to six or occasionally more a day, and this condition continued to the end. Dog 2 showed nothing abnormal.

Effect on Strength.—Almost from the first Dog 1 showed a lessened strength and endurance, as compared with Dog 2, and evinced a preference for sitting or lying down a good

1. Deeks, W. E.: The Carbohydrate Diathesis, Med. Rec., New York, Oct. 8, 1910.
2. Kerley, Charles G.: Cane-Sugar in Its Relation to Some of the Diseases of Children, Arch. Pediat., October, 1907.

part of the time, but at no time was so sick or weak as to fail to come when called, except during a temporary withdrawal of the sirup as described later.

Effect on Development.—The most striking result of the experiment was the effect on the muscular and bony development of the dog receiving the sirup. There was an extreme softness and flabbiness of the muscles, comparable to the condition of a patient in the last stages of a serious illness. The bone development in Dog 1 was much less rugged than in Dog 2, especially noticeable in the narrowness across the chest and shoulders of the former as compared with the latter.

Effect of Discontinuing the Sweets.—During the last month of the experiment the sirup and sugar were discontinued for one week. Dog 1 became so ill as to refuse to leave her house or take food. On being given a laxative and resuming the sirup diet she soon became as well as before. The change in diet had no apparent effect on Dog 2.

At the end of six months the experiment was terminated. Dog 2 appeared so active and vigorous — and had at all times from the first — that the effect of the addition of the cane-sugar to the diet was considered negative.

PATHOLOGIC REPORT

In a post-mortem examination of Dog 1, the organs found to be mainly affected were the intestine, liver and kidneys. Sections of these organs, which were examined by Dr. John Funke, showed the following changes:

Intestine.—Necrotic areas, at some points reaching to the submucosa, involving the agminated and solitary lymphoid structures.

Liver.—An abundance of cellular infiltration of the interlobular and intralobular structures. Few normal liver-cells could be found; vacuolization of the protoplasm due to a deposit of fat within the liver cells. Clearly a beginning intralobular cirrhosis.

Kidney.—Many tubules lined with epithelium which is swollen, granular and blurred, at some points occluding the lumen of the tubules; evidences of irritation much less pronounced than in the liver.

SOME SUGGESTIVE FACTS

While sugar-cane products were scarcely used at all a hundred years ago, they are now used in enormous quantities, and their consumption is increasing faster than ever before. This fact alone certainly seems to require investigation since it indicates that these products differ in some essential way from other foods.

The theory that sugar-cane products are habit-forming is suggested by the following fact:

If a child is allowed all the candy it wants it will eat increasing quantities from day to day and will in time develop an enormous craving for sweets, largely to the exclusion of other foods. A habit is thus formed which will be difficult to break up since a withdrawal of the customary allowance of sweets is followed by a reactionary depression and craving.

The injurious effect of sweets on the teeth is a matter of such wide-spread observation and belief that it must have a foundation of truth, but has never been satisfactorily explained. Experimental attempts to demonstrate that sweets cause decay of the teeth by some local action in the mouth have given negative results; that this decay is due to their constitutional effect seems reasonable in the light of the serious lesions which they produce in the liver and intestines and their profound effect on nutrition, as shown by the foregoing experiment.

New Instruments and Suggestions

A NEW SIMPLE STETHOSCOPE

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The stethoscope which I have devised intensifies the audibility of sounds without changing their character. It consists of a set of resonators of different sizes, which are adapted to be detachably connected to a hollow, curved Y-tube that serves as a handle and also as a connection for the ear-pieces. The resonators are so constructed that they can be nested together and combined with a member which cooperates with a resonator of greater diameter to form a protecting cover for other resonators that are nested inside.

Each resonator, A, A^1 and A^2, is cup-shaped, with a flat top wall, and is preferably formed from metal, although some other suitable material which has a certain degree of resonance would do as well. The opening from the top wall of each resonator, *2a*, communicates with opening *1a* of the device *B*. The resonator is connected to the handle *B* in such a manner that it can be easily disconnected, thereby

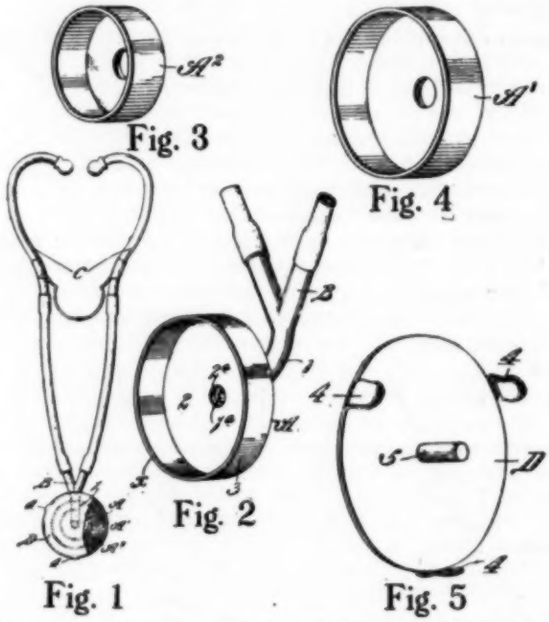

Fig. 1.—View, front elevation, partly broken away, of the complete instrument.
Fig. 2.—Perspective view, showing the large resonator mounted in operative position with the combined handle and connecting member.
Figs. 3 and 4.—Perspective views of the smaller resonators.
Fig. 5.—Perspective view of the cover member.

enabling the same connecting member *B* to be used with different-sized resonators. When the rim of the cup-shaped resonator is placed in contact with the patient's chest, the air which is trapped inside of it is set in vibration by the vibration waves of the chest wall. These vibrations are taken up in unison by the resonator itself. Consequently, the sound waves are intensified and transmitted through the hollow connecting device *B* and thence to the ear-drums through the ear-pieces *C*.

The cap member, Figure 5, consists of a disk that is provided with several spring fingers that lap over the flange or rim of the large resonator, as shown in Figure 1, thus holding the cap member in position. This cap member is provided with a stud, or guide, in the center that projects through the center openings of the resonators, A^1 and A^2, and thus holds them in position in the enclosing shell, preventing them from rattling and moving around.

When the instrument is to be used, the cap member is removed and a resonator of the proper size is then secured to the connecting member *B*, the operator grasping the shank of the member *B* and using it as a handle to place the resonator in proper position on the body of the patient.

The small resonator, A^3, is especially adapted for auscultating children, localizing heart-murmurs, and in the auscultatory method of taking blood-pressure.

An instrument constructed as described above can be sterilized, because it has no parts that are damaged by water or excessive heat, such, for example, as the hard-rubber diaphragms of the stethoscopes now in general use, or as the hard-rubber bells. Friction sounds are largely eliminated, because only the lower edge of the side wall of the resonator comes in contact with the patient's body. Furthermore, this instrument overcomes the necessity of a physician owning a number of complete stethoscopes of different sizes, owing to the fact that it comprises a set of resonators of different sizes that can be stored compactly.

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TABLE ATTACHMENT FOR DOING SURGERY ON FACE, THROAT AND NECK

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This apparatus is especially useful for cleft-palate work, enabling the operator to obtain a perfect Rose position (Fig. 1) without its being necessary for some one to support the head and shoulders. The head while in the basket portion can be turned from the right or left. The head and neck can be brought up or down as desired (Fig. 2).

For thyroid work it is ideal. Extension can be easily obtained and at the same time throws the thyroid gland up into view. This dispenses with the sand-bag placed under the back of neck. The head and neck are held firmly in position.

Fig. 1.—Patient in Rose position.

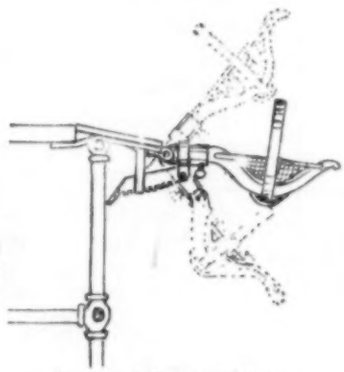

Fig. 2.—Different positions.

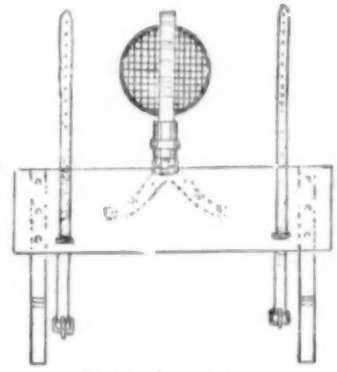

Fig. 3.—Top view.

The apparatus consists of a shoulder-plate the width of an operating-table. Attached to the under surface of the plate are two arms which go under the top of the table (Fig. 1). In each end of the plate is a slot through which passes a strap to go around the shoulders to support them.

A hinge-joint arrangement is attached to the under surface of the shoulder-plate, enabling the head and neck portion to be moved up or down as desired. The neck-piece is made of tubing which is fastened to the hinge-joint by a pin.

The basket portion is made of a piece of steel, which is curved to conform to the head (Fig. 1), and brass wire. The steel on which the basket proper is made ends in a stem which telescopes into the tubing which makes the neck portion.

A thumb- or set-screw as seen in Figure 1 holds the stem of the basket or head portion in the tubing. When the thumb- or set-screw is loosened, the stem rotates in the tubing right or left, or the neck portion can be made longer or shorter by pulling out or shoving back the stem into the tubing.

Around the tubing which makes up the neck-piece is a collar, to which is attached a notched lever which catches in a slot (Fig. 1). The slot is riveted to the under surface of the shoulder-plate. This notched lever is used to support the head and neck portion at any angle wanted (Fig. 2). A strap goes around the forehead if needed (Fig. 1). The strap is fastened to the basket and buckled over.

The anesthetist places the head and neck in any position desired by the operator.

1525 Calliope Street.

AN OPERATION FOR SHORTENING THE SCROTUM

R. L. RHODES, B.A., M.D., ROANOKE, VA.

Not infrequently associated with varicocele is a long, lax, pendent scrotum which in itself needs consideration, and unless dealt with properly these patients will not obtain complete relief from removal of the veins.

The operation most commonly employed is to clamp off and remove the redundant scrotum *en bloc*—the clamp being placed in such direction as is thought best.

The operation which I propose is not to use the clamp but to make the incision through the skin only, and this can then be readily dissected or stripped from the subcutaneous tissues. The incision may be elliptic, as when only one side of the scrotum is pendent, to shorten this side; or transverse, removing as much of the lower end of the scrotum as is desired; or following the line of the raphé extending on either side as wide as is desired. It may be closed in a straight line transversely or parallel with the raphé or in the shape of a cross (+) depending on the amount of skin denuded and the direction most desired to be abbreviated.

ADVANTAGES

1. It is an open operation with everything in full view of the operator, and therefore there is no possibility of doing any damage.
2. There is practically no bleeding—only a few oozing points which can be readily ligated.
3. It can be readily and painlessly done under a local anesthetic.
4. All the tissues beneath the skin are preserved. This is especially desirable as regards the dartos, which because of its elastic and muscle-fibers rapidly contracts following the operation, and forms a thicker, firmer and stronger support.
5. There is no postoperative discomfort.
6. The danger of postoperative hematoma is entirely eliminated because no large vessels are cut, and such as are cut are readily seen and ligated.
7. The scrotum is not opened, and therefore there is no possibility of carrying infection within—it being difficult thoroughly to cleanse and sterilize because of the tenderness of the scrotum.

A Simple, Practical Formaldehyd Sterilizer.—A sterilizer for certain diagnostic and dressing instruments, catheters, and paraphernalia that stand boiling poorly is not only a convenience but a necessity. The formaldehyd sterilizers on the market are efficient, look well, and are relatively expensive. I have found the following bread-box sterilizer satisfactory: A well-made box can be bought for less than a dollar; it should measure about 12 by 9 by 9 inches. Two sets of tin shelf-rests should be soldered in so that when the box rests on its back with its lid opening toward the front, the rests with their trays in place will give a three-compartment box. The trays are made from medium heavy ¼-inch wire mesh material which is faced and sided with tin. The total cost of this sterilizer will not exceed $2.50 instead of the customary $7 or $8. A box should be selected with a tightly fitting lid, if possible, but this defect can be somewhat overcome by the application of adhesive stripping around the narrow edge of the box over which the lid slips. The ventilation-holes should be covered with adhesive also. Powdered formaldehyd is exposed in a small dish which is set in the bottom compartment.

GEORGE STACY, M.D., Jacksonville, Ill.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 8, 1914

LIGHTING AND EYE-STRAIN

There is no organ of the body, outside of that limited group which is absolutely indispensable for the maintenance of life, which contributes more to human efficiency and personal comfort than does the eye. When we stop to consider the prolonged demands made on the organs of vision in these days of printing, and the shameful indifference with which their conservation is treated, it is surprising that they do not fail in their task more frequently than is actually the case. The muscular and nervous systems give a warning when they are called on in undue measure. Premonitory symptoms of fatigue or pain serve to prevent harmful overexertion. But our eyes rarely receive any studied consideration except at long intervals, and then usually under the pressure of impending damage to sight; nor are we concerned as a rule with any adjustment of the needs of the visual apparatus so as to relieve it of any unnecessary burdens or make its task easier of accomplishment.

It has recently been remarked that the goal of the lighting engineer has up to the present time been to get the maximum output of light for a given expenditure of energy. The lighting problem, however, has a very important relation to the eye. If the system of illumination is unsuitable it may speedily produce a loss of efficiency for continued work, and discomfort may likewise ensue. It is interesting to know that the industries concerned with the manufacture of lighting devices are recognizing the need of physiologists as a part of their scientific equipment. Commendable beginnings are being made in the effort to ascertain the merits of various lighting systems from the point of view of the individual rather than of the producing plant. In illustration of this we may quote freely from a recent report by Ferree[1] which represents progress.

The four types of lighting systems in common use to-day are: daylight, direct lighting systems, indirect systems and semidirect systems. The evenness of illumination and the proper diffuseness of the light with exclusion of all extremes of surface brightness are ideal conditions best realized at present in the proper illumination of a room by daylight. As Ferree points out, before it reaches our windows or skylights, daylight has been rendered widely diffuse by innumerable reflections; and the windows and skylights themselves, acting as sources, have a broad area and low intrinsic brilliancy, all of which features contribute toward giving the ideal condition of distribution stated above. The best distribution effects given by artificial lighting are obtained with the indirect systems in which the source is concealed from the eye and the light is thrown against the ceiling or some other diffusely reflecting surface. In the direct systems the tendency is to concentrate the light on the object viewed, and too often the eye is not properly shielded from the source of light. The semidirect systems represent a compromise in which a part of the light is transmitted directly to the eye through a translucent reflector, and a part reflected to the ceiling. Like most other compromises, this one is not ideal. We are assured that among the lighting factors which influence the welfare of the eye, those grouped under the heading "distribution" are apparently fundamental. The newest tests seem to indicate that where the light is well distributed in the fields of vision and there are no extremes of surface brightness, intensities bright enough to give a maximum discrimination of detail may be employed without causing appreciable damage or discomfort to the eye. We are further told that for the kind of distribution effects given by the majority of lighting systems now in use too much light for the welfare and comfort of the eye is being employed. Under many of the systems of direct lighting the eye loses greatly in efficiency as the result of three or four hours of work. In this time it loses practically nothing under daylight, and little more under good systems of indirect lighting.

It is interesting to learn that the difference of opinion regarding the effect of the quality of light on the eyes is quite as wide-spread among the experts as in lay circles. Ferree is not prepared to admit the common belief that colored light, such as is furnished by the kerosene flame, gives better results for seeing than white light. So far as visual acuity is concerned the clear tungsten lamps yield nothing to the carbon lamps which give a light comparatively rich in yellow. If it is true that the kerosene flame is easier on the eye than the more modern sources of illumination, Ferree is inclined to ascribe the benefit, whatever it may be, to the low intrinsic brilliancy of the kerosene flame; for, according to him, it may safely be stated that for the kind of distribution effects now obtained from most of our lighting systems, too much light is being used for the welfare and comfort of the eye. "Our problem in lighting at present is not so much how to see better as it is to see with more comfort and with less damage to the general health on account of eye-strain."

1. Ferree, C. E.: The Problem of Lighting in Its Relation to the Efficiency of the Eye, Science, July 17, 1914, p. 84.

STANDARDS FOR MILK

The first report of the Commission on Milk Standards, appointed by the New York Milk Committee, was published in the United States *Public Health Reports*, May 10, 1912. The second report of the commission was published in the same place, Aug. 22, 1913. At the annual meeting of the commission, held in New York in May of the present year, the commission decided not to make any changes in the classification of the report of the commission as contained in its last published report, but recommended that efforts be made by the New York Milk Committee looking toward the adoption of a classification and standards for milk by state, local and municipal health authorities.

At the recent session of the American Medical Association, the Section on Preventive Medicine and Public Health adopted a resolution endorsing the standards suggested by the commission. This resolution was referred to the House of Delegates, and, after having been considered by the Reference Committee on Hygiene and Public Health, was approved by the House.

Just previous to the meeting of the American Medical Association, the Conference of State and Provincial Boards of Health of North America unanimously adopted a resolution endorsing the standards and classification of milk along the lines suggested in the report of the commission, and urged the establishment of such uniform milk standards and classifications by state, municipal and local health authorities.

It is believed that the adoption of these resolutions, emphasizing as they do the interest for the establishment of milk standards and the classification of milk, will be of material aid in forwarding the campaign for pure milk now being waged throughout almost the entire country.

It is understood that the New York Milk Committee has under contemplation, in accordance with the suggestion of the Commission on Milk Standards, the inauguration of a campaign throughout the United States looking toward the adoption of uniform milk standards and classifications.

There are at present pending before the courts, in various sections of the country, cases against milk-dealers for selling milk containing large numbers of bacteria. One of the points that has been raised by the defense has been that the standards proposed by the Commission on Milk Standards have not been endorsed by representative bodies. The fact that the report of the commission has received the endorsement of the American Medical Association, the Conference on State and Provincial Boards of Health, the American Public Health Association and the American Veterinary Association absolutely demolishes this argument.

There is probably no single factor proposed for the control of milk-supplies that is of greater assistance to the authorities in forcing dealers to sell a safe and pure milk than is the adoption and enforcement of bacterial standards for milk. One of the arguments that has been raised by opponents of bacterial standards for milk has been that it is not the number of bacteria, but the kind of bacteria that is of harm, and the statement is made that a few typhoid bacilli are of infinitely more harm than millions of lactic acid organisms. These statements are, of course, true; but the number of bacteria in a milk undoubtedly gives valuable information as to the conditions under which that milk was produced, how it has been handled and how it was kept as regards refrigeration.

The adoption by public health authorities of standards such as those proposed by the Milk Commission and endorsed by the American Medical Association, modified to suit local conditions, will be a potent factor in advancing the cause of pure milk in the United States.

NERVOUS OR EMOTIONAL GLYCOSURIAS

In discussing recently[1] what has been termed the "emergency function" of the adrenal glands, attention was called to the fact that severe emotions, exemplified in fear, rage and pain, are accompanied by an increased discharge of epinephrin into the blood. The hyperglycemia and the epinephrinemia are both due to nervous discharges. Evidences on record show that these effects may be sufficiently intense to lead to the usual consequence of increase in the sugar-content of the blood, namely, glycosuria. That experimental procedures attended by pain result in the appearance of sugar in the urine was demonstrated many years ago. That pure emotional excitement — fear or rage — will have the same effect was proved when Cannon, Shohl and Wright[2] obtained glycosuria in cats by placing them in small cages and permitting dogs to bark at them. Whether or not glycosuria appeared promptly depended on the animal's emotional reaction to the experience. A positive result was not obtained, furthermore, when the adrenals had previously been removed.

It is not unlikely, in view of the experimental findings now on record in the study of animal behavior, that emotional glycosurias are far more common in man than has been previously supposed. "Nervous glycosuria" is a familiar expression to the clinician. The fairly frequent occurrence of moderate glycosuria in the insane has long been known; and in view of the fact that a large number of such patients are subject to intense emotional excitement, Drs. Folin, Denis and Smillie[3] of the Harvard Medical School have accordingly raised the question whether or not many of the

1. Newer Views of the Functions of the Adrenals, editorial, THE JOURNAL A. M. A., July 25, 1914, p. 322.
2. Cannon, Shohl and Wright: Am. Jour. Physiol., 1911, xxix, 283.
3. Folin, O.; Denis, W., and Smillie, W. G.: Some Observations on "Emotional Glycosuria" in Man, Jour. Biol. Chem., 1914, xvii, 519.

glycosurias occurring in the insane have a psychic origin. Mita[4] had already found sugar in the urine to be particularly frequent in patients subject to fear and depressions; and he suggested that there may be a certain relationship between glycosuria and the mental state independent of the more fundamental character of the mental disease. The Boston investigators found sugar in the urine of twenty-two out of one hundred and ninety-two patients examined at the McLean Hospital for the Insane. The great majority, but not all of those who exhibited glycosuria, suffered from depression, apprehension or excitement. Some of them had been in apparently the same condition with reference to the emotional state for several years. At the Danvers State Hospital for the Insane Dr. Bond found sugar in the urine in more than 8 per cent. of a large number of consecutive examinations made immediately after admission of the patients to the hospital, which would probably include a larger percentage of excited individuals.

As Folin and his collaborators remark, it is clear that the percentage of the insane having fairly conspicuous traces of sugar in the urine is very large; and if there is such a thing as emotional glycosuria in human beings, one would naturally expect to encounter it very frequently in this class of patients. Mentally normal persons are, furthermore, not free from strong emotional reactions on suitable occasions. That the physiologic sequences — presumably sympathetic stimulation and epinephrin discharge into the blood, with its consequences — are not missed under suitable conditions in sane man, is attested by the fact that Smillie[5] found glycosuria in four out of nine medical students (all normally aglycosuric) after a difficult examination, and in only one of the nine after an easy examination.

In another instance twelve out of twenty-five members of a university football squad were reported to have sugar in their urines immediately after the final and most exciting contest of the season.[5] At the Harvard Medical School 18 per cent. of thirty-three second-year medical students were found by Folin, Denis and Smillie[3] to have small, but unmistakable traces of sugar in the urine passed immediately after an important examination. From a comparable group of second-year women students at Simmons College, 17 per cent. of positive tests were likewise obtained. These facts, taken in connection with the previously discussed bearing of mental and emotional strain on the function of the adrenals give a new interpretation to a group of temporary glycosurias long known in clinical medicine, yet always obscure in their significance.

4. Mita: Monatsh. f. Phychiat, u. Neurol., 1912, xxxii, 159.
5. Compare Cannon, W. B.: The Emergency Function of the Adrenal Medulla in Pain and the Major Emotions, Am. Jour. Physiol., 1914, xxxiii, 359.

THE BRITISH NATIONAL INSURANCE ACT

Reference has been made in THE JOURNAL from time to time to the British national insurance act. THE JOURNAL has endeavored to set before its readers the progress of the passage and development of the act, feeling that while social, professional and economic conditions in the United States and England differ vastly, some valuable lessons could be learned from the experiences which our English professional brethren have undergone in the last three years. For a number of months past the London *Lancet* has published a series of articles by a special commissioner sent out by the *Lancet* to investigate the workings of the insurance act in different parts of England. In the *Lancet* for July 4 appears an interesting editorial summing up the conclusions drawn from this careful study of the operations of the act. According to the *Lancet*, it is clear that the working of the national insurance act, so far as the administration of the medical profession goes, is at present only partially satisfactory. Many of the objections raised to the act before its passage have been fully sustained by subsequent experience. The new law has benefited a certain number of physicians financially, and in many places the standard of contract practice has been improved over the conditions of club practice which existed previously. In other places, however, the special commissioner reports that the old and objectionable conditions of club practice remain practically unchanged. The administration of the act is, it is asserted, cumbersome and expensive, and a considerable amount of amendment and modification will be necessary before a smoothly working system is established. The *Lancet* says that the faulty conditions of club practice have reasserted themselves in panel work. The progress of the work under the act has fallen into the hands of a relatively small number of physicians instead of being evenly distributed. Some physicians have little to do under the act, while others have undertaken more than they can adequately perform. A distinct line of cleavage has arisen in the profession between panel and non-panel doctors, tending toward the creation of rich men's and poor men's doctors. The amount of sickness is suspiciously high in many places and the pecuniary strain on hospitals has been increased.

As an alternative to the present insurance plan, the *Lancet* discusses the proposition made by Dr. W. A. Brend in a recent article in the *Nineteenth Century and After*, advocating the establishment of a national medical service. Dr. Brend finds one of his strongest arguments for the establishment of such a service in the fact that under present conditions in England, the medical services available for the poor do not cover the field and are not of a satisfactory quality. As a remedy he suggests the establishment of a salaried medical service with local centers for medical treatment. He proposes a centrally placed building in every town of twenty thousand inhabitants or thereabouts,

as a clinical dispensary, such a building to contain consultation and waiting rooms and a small operating room. In cities of more than twenty thousand, these buildings would be duplicated as the demand might require. Larger cities would have also a Roentgen-ray laboratory and a clinical-pathologic laboratory. Each district, under Dr. Brend's plan, would be divided into areas, and one salaried medical officer would be assigned to each area to take care of all the patients confined to the house, ambulatory patients being treated at the central clinical building. Each clinic would require the services of from five to eight whole-time, salaried, general practitioners with a chief medical officer for each clinic, and district officers and a central administrative staff.

Commenting on this plan and on the suggestion of Sir Clifford Allbutt for a ministry of health as a part of the national government, the *Lancet* endorses the latter proposition but is unable to see the necessity of transforming the medical profession into a state service in order to secure a health department in the government. Summing up the advantages of a state medical service to the medical profession, the *Lancet* holds that this should mean greater leisure to the individual physician for keeping abreast of new knowledge, opportunity for postgraduate study and for research work, regular working hours and holidays, and certainty of income; but it feels that the drawbacks to such a plan are as obvious as the advantages.

The English situation is interesting and instructive. In that country the demand for better health organization is coming from the people, and the medical profession is apparently the body which is withholding its endorsement. In this country, the organized medical profession has been committed for years past to the establishment of a national Department of Health, while the difficulty lies not so much in the opposition of the public as in its lethargy. Inasmuch as the establishment of a health department as a part of the national government, whether in this country or in England, would be entirely in the interests of the public, and as the labor of organizing and administering such a bureau would fall almost entirely on the medical profession without any immediate reward except to those comparatively few salaried officers necessary for its administration, it would seem reasonable to expect that the opposition, if any, would come from the medical profession rather than from the public. The explanation of the apparently anomalous situation is probably that in this country, the agitation for a national Department of Health was started by the medical profession before the public had come to realize the value or necessity of such a plan, while in England, public opinion on this subject is far in advance of professional opinion, so that the medical profession is the body which needs education in England, while the general public is the factor in need of enlightenment in this country.

INFANT MORTALITY IN THE PHILIPPINE ISLANDS

Certain anomalous features with respect to infant mortality in our Eastern insular possessions are not easily realized at first by any one accustomed to conditions in the United States or Continental Europe. We are told by the health authorities[1] that infant mortality in Manila is greater than it is in any other city from which we have records. This excessive mortality is not due to a single cause or to natural conditions of the country. There are a number of predisposing factors, prenatal and postnatal, as well as various immediate or active causes. Faulty nutrition is one of the most prominent.

It is said that in countries having the same degree of civilization the infant death-rate is remarkably constant, and this is probably accounted for by the similarity in the methods of feeding. Certainly where there is a difference in conditions a difference in mortality will be found. Thus, the mortality of infants fed on cow's milk has been shown to be from five to ten times that of those fed on mother's milk.[2] Ordinarily one would not hesitate to emphasize the desirability of breast-feeding for all children whenever feasible. The artificial (or what Schlossmann has termed the "unnatural") nourishment of the infant has not successfully replaced the natural feeding. This, in the words of an expert in this field, is the inevitable conclusion to which we must come, despite the great advances in our knowledge of foods and nutrition.

In the face of such teachings it is most surprising to learn from the report of Professor Musgrave,[1] of the College of Medicine and Surgery in the University of the Philippines, that the mortality in the breast-fed children there is higher than it is among children artificially fed. This condition seems to be peculiar to the Philippine Islands. The explanation is believed to lie in the deficient quantity and quality of mother's milk. The undernourished condition of many of the mothers, due to the ravages of disease, doubtless contributes to the deficiency in the quantity of breast-milk which has been observed repeatedly in the clinics of the large Philippine General Hospital. The ultimate hygienic aim must therefore be to correct the faulty nutrition of the mothers by education and wholesome reforms in diet. The immediate need, however, is for a food that will save the babies.

Here, again, unusual circumstances stand in the way of an ideal procedure. Next to mother's milk, which would unquestionably be the first choice under normal conditions, comes cow's milk. This substitute has considerable physiologic adaptability, and, furthermore, is the only milk that can be produced in quantities to meet the world's needs. At present, fresh, clean, raw,

1. Musgrave, W. E.: Infant Mortality in the Philippine Islands, Philippine Jour. Sc., Sec. B, Trop. Med., 1913, viii, 459.
2. See Westergaard, Harald: Mortalität und Morbidität, Jena, 1901, p. 364.

cow's milk is not obtainable in large quantities in the Philippine Islands. The milk production there is negligible in relation to the requirements of the country, and the prospect for a sufficient local production seems very remote. Herein, as Dr. Musgrave has pointed out, is a new problem in infant-feeding. The milk of carabaos and goats with that from a few dairies located in the larger cities at present constitutes the principal supply. Moreover, we are told that "practically all fresh milk produced in the Islands is dangerous to health, in whatever manner used, and the marketing of these products should be interdicted by law." We have commented on this situation in the past.[3]

The pressing problem, then, with respect to the food-supply for infants in the Philippines, is the introduction of the most suitable substitutes for fresh milk. In 1912 an equivalent of between 18 and 20 million kg. (about 40 million pounds) of milk was imported into the Islands. The opportunities for reforms are enormous. The products henceforth used should be suitable, inexpensive and economically procurable. The fact that a fertile field is offered for the exploitation of baby-foods calls for stringent supervision and a policy of education. Filipino mothers should be taught not to use contaminated water as a diluent of infant foods. The mixtures prepared for use by these mothers have been shown again and again to harbor dangerous bacteria in countless numbers. The almost universal custom of maintaining the greatest irregularity with respect to time of feeding and the quantity and character of the food administered to babies demands effective reform. We anticipate that the American health authorities in the Philippines, in conjunction with the growing group of native physicians educated under the American régime, will bring about lasting, wholesome changes leading to a conservation of infant life. When it is recalled that the present enlightenment in this direction has been of comparatively recent origin even in so-called culture states, the necessity for both patience and perseverance in meeting the situation described for the Philippines becomes apparent. The children cannot reap the reward at once.

It is sometimes asserted that infant mortality is but the operation of natural selection and should not be interfered with if we are to keep up the vital powers of the race. Preventive medicine has certainly prolonged the lives of infants or of children in general.[4] That a high infant mortality does not tend to produce a long-lived race, but rather to stunt all life, would seem to be indicated by the evidence collected in the Report on National Vitality prepared for the National Conservation Commission.[5] This shows that Russia, for instance, has a high infant mortality. If the statistics are to be trusted, it is 70 per cent. greater than in the United States; yet Moscow and St. Petersburg have a general mortality rate which greatly exceeds that of similar cities in this country. The commission's report further notes that perhaps the more unfavorable the struggle for existence the more rapidly will natural selection result in improved vitality. Even if this were true, however, it would not imply that in a more favorable environment selection would cease; and it may not be true. It is maintained by some that adversity, if too severe, will crush and injure the survivor as well as eliminate the weakling. We do not look for the best trees on the bleak mountain-top, but in the genial valley. As we go up the struggle for existence increases, until even the sturdiest fail to thrive above the "timber-line." The farmer who tries to improve his stock does not subject the animals to hardships. Cold and starvation are now almost unknown in the great ranches, and the breeds that were notable for ability to withstand them give way to varieties adapted to neither condition.[6]

3. Milk in Manila, editorial, THE JOURNAL A. M. A., March 7, 1914, p. 782
4. Graham., Edwin E.: Infant Mortality, THE JOURNAL A. M. A., Sept. 26, 1908, p. 1045.
5. Fisher, Irving: Report on National Vitality, Its Wastes and Conservation, Bull. Committee of One Hundred on National Health, No. 30, July, 1909.
6. Patten, Simon N.: The New Basis of Civilization, New York, 1907.

Current Comment

DO THE RED BLOOD-CELLS CONTAIN PROTEOLYTIC FERMENTS?

A few years ago the possible function of autolytic processes in a variety of physiologic and pathologic phenomena was actively considered. It became evident that proteolytic enzymes are widely distributed in the organism outside of the digestive tract; and their presence was drawn on to explain certain manifestations of cell disintegration. The problem appeared in a new light, however, when it was found that various components of the blood contain proteolytic ferments. With respect to the leukocytes, for instance, there can no longer be any doubt on this point. Both the white cells contained in normal blood and those found in sterile pus exhibit undoubted proteolytic activity on suitable substrates. The blood platelets likewise are reported to manifest proteolytic enzymes.[1] Normal blood-serum is devoid of proteolytic power. The development of enzymes in it in an indirect way is, of course, the subject about which the widely discussed serum diagnosis formulated by Abderhalden has revolved. The topic has become the occasion for rather acrimonious argument in recent months and has not reached the stage at which calm judgment and positive conclusions prevail. There remain the erythrocytes for consideration with respect to their possible proteolytic equipment. Information is the more desirable because of the wide-spread distribution of the red blood-cells and the difficulty, if not impossibility, of excluding them from participation in many physiologic processes. Certain observers[1] have main-

1. Abderhalden, E., and Manwaring, W. H.: Ztschr. f. physiol. Chem., lv, 377.

tained that the erythrocytes can digest polypeptids; but Pincussohn and von Roques[2] of the Second Medical Clinic at the University of Berlin have lately demonstrated that the red cells, in the concentration in which they occur in the circulating blood, cannot digest tissues prepared as is customary in the proteolytic serum diagnostic methods of Abderhalden and tested with the now familiar ninhydrin reagent. Furthermore, the absence of autolytic changes in isolated erythrocytes speaks likewise for the absence of the usual proteolytic enzymes.

QUIET PLACES FOR MEDICAL MEETINGS

The following letter, written by one of the leading scientific public health workers of the country, points the way in a greatly needed reform:

> It is not my desire to try to reform the world, and, in fact, I never do anything that I can get some one else to do. The latter clue gives you the purpose of this letter—to ask you to do something.
>
> I suppose that there are very few medical men in this country who attend as many medical meetings as I do. There is one point connected with at least one-half of all of the medical meetings I attend that renders this attendance practically a loss of time on my part. This point is a very simple one. It is this:
>
> The average medical meeting is held in a hall that is anywhere from three to ten times too large; it is usually in the noisiest part of the city that can be found so that the papers have a constant musical accompaniment of passing street-cars, railroad-trains, trucks, etc. It is usually in the noisiest building that can be found for fifteen miles around. As a result of this combination, it is impossible to hear half that is said in the meeting, and it is so much easier to go out in the lobby to chat than it is to sit in the room and strain one's ears trying to hear what is being said that it is a positive relief to get out of the room.
>
> The foregoing criticism is not made in a hypercritical spirit at all, but it is made from observations in all parts of the country. The average meeting is a bore for the simple reason that I cannot hear what is said. Will you not use your eloquent pen in an attempt at a reformation in this line? If you will do this, I will see that the future generations place you in the same category with Luther and other reformers.

THE JOURNAL is glad to give space to this criticism, not in the hope of securing a place in history with Martin Luther, or even a statue in the Hall of Fame, but because all of our readers who have attended many medical meetings will sympathize with the writer of the letter. One is often led to wonder, in attending a medical association meeting, why so many of those who go to the expense and effort of attending spend so little time in listening to papers or discussions. Our contributor has pointed out one reason. Certainly meeting-places should be selected and arranged so that those who desire to hear the papers and discussions can do so with the least possible effort. The selection of suitable meeting-places is of the greatest importance in determining the success of medical gatherings. And this applies, may we remark on the side, to the meetings of the Sections of the American Medical Association.

2. Pincussohn, L., and von Roques, K. R.: Untersuchungen über die fermentative Eigenschaften des Blutes. iv. Untersuchung der Formbestandteile des Blutes auf proteolytische Fähigkeiten, Biochem. Ztschr., 1914, lxiv, 1.

CARNOSIN IN MEAT

Physiologic chemists have long appreciated the fact that our knowledge of the composition of the extract of meat is far from complete. Muscle tissue in some guise or other enters extensively into the dietary of man. Aside from its richness in protein, meat is recognized to contain purin compounds (among which hypoxanthin is the most conspicuous), as well as the nitrogenous substance creatin regarding the metabolic history of which there is a lack of conclusive information. These components, along with the inorganic salts of the muscle by no means exhaust its yield of characteristic chemical compounds. A few years ago it was customary, owing to the prevailing ignorance on the subject, to speak of the chemical residuum as a mixture of small amounts of very diverse substances. Some of these "traces," like lactic acid and inosic acid, were early recognized and found their way into descriptive text-books. For the most part, however, the heterogeneous collection of the undiscovered products has awaited investigation. From among these the Russian chemist Gulewitsch has brought to light the base carnosin, which deserves to rank prominently among the extractives of muscle. Carnosin, with an empirical formula $C_9H_{14}N_4O_3$, appears to be a dipeptid composed of the amino-acids histidin and beta-alanin. From a chemical point of view, therefore, it is an unusual compound, judged by the structures with which the biochemist ordinarily deals. An added interest arises from the newest analyses of von Fürth and Hryntschak[1] which indicate the presence of as much as 3 gm. per kilogram of mammalian muscle. In order of magnitude this approaches the content of creatin in the same tissues.

PRACTICAL SANITATION IN INDIANA

During the last two years, 393 new schoolhouses have been built in Indiana at a total cost of about $4,000,000. These new buildings are all thoroughly modern and sanitary in their construction and equipment and are in full accordance with the sanitary schoolhouse law of the state. This law, passed several years ago, requires that the plans and specifications for all schoolhouses must be submitted and approved by the state board of health before the contracts for their construction are authorized. The condemnation by the state board of health of numerous insanitary, dilapidated and otherwise unsatisfactory school buildings and the enforcement of the new law have brought about a marked change in school sanitary conditions in Indiana. The results show the ease with which better conditions may be secured, provided effective remedies are adopted. It is obviously much easier to change the plans than to change the buildings, and far better to criticize a building before it is built than after it is constructed. Most persons want to do what is right and will do so if they know what is right at the right time. Indiana's schoolhouse law is a striking example of a sensible law that really accomplishes something. It ought not to be difficult to

1. Von Fürth, O., and Hryntschak, T.: Ueber den Karnosingehalt der Säugetiermuskeln, Biochem. Ztschr., 1914, lxiv, 172.

secure similar laws in every state. In most of our principal cities the plans of every building must be approved by the proper authority—usually the city health board—before the building can be erected; certainly no building is more important than the school.

A SCOTTISH MEDICAL SCHOOL

It is the custom for the British Medical Association to select as its president a prominent member of the profession resident in the town in which its meeting is held. At the session just closed at Aberdeen this office was held by Sir Alexander Ogston, Emeritus Regius Professor of Surgery in the University of Aberdeen. His president's address was devoted to the history of Aberdeen and the founding of what was probably the first university medical school in the British Islands. It is probable, he admits, that some of the older universities of Great Britain may have had in a clause in the papal bill authorizing their establishment some reference to a faculty of medicine, but it would appear from his showing that such a plan was practically carried out from the beginning only in the University of Aberdeen, founded in the latter half of the fifteenth century. At that date Scotland, as Ogston tells us, was, except for a few coast towns, a practically uncivilized country. The age as far as learning was concerned was a dark one in North Britain and it was in the northern and least cultivated portion that Aberdeen was situated. Still, as he shows, there was appreciation of learning, and a grammar school existed in that city, or village as it was at the time, as early as 1263. The larger part of the address is devoted to the history of the founder of this first medical school in Britain, Bishop Elphinstone, who appears to have been a bright and shining light in a very naughty world, a contrast to most other Scottish prelates of his time, who were largely devoted to their own interests rather than to the welfare of their flocks. The address is an interesting historical document and as such was probably heard with as much interest as it would have been had not the author modestly excused himself from following the more usual custom of dealing with some purely medical subjects and the advances made in medicine during the year that had passed. In this contribution to medical history Sir Alexander Ogston gives complete evidence that his powers of description and of conveying information attractively have not yet failed him.

NEWS IN PEACE AND WAR

A few weeks ago the cables announced an accident in which fifteen persons died through explosion of a German dirigible balloon. The story was featured with expressions of horror and sorrow at this terrible catastrophe. The newspapers commented on it for days. The other day the cables announced that a balloon containing twenty-five German soldiers had been rammed by a French aeroplane. Twenty-six courageous fighters in the height of their activity met a sudden and terrible death. This item was printed as a mere incident, and no comments made. But this is war!

Medical News

CALIFORNIA

Summer Course at Stanford.—A summer graduate course in medicine, approved by the board of trustees of Stanford University, opened July 6 at San Francisco. The course will continue until August 15, and will consist of twenty-two lectures, together with clinical work at several hospitals.

Restraining Order against Board.—A temporary restraining order is said to have been issued against the State Board of Medical Examiners on the petition of Drs. Edward J. Rich and Gidean M. Freeman, Los Angeles, accused of being guilty of unprofessional conduct in connection with the museum of Dr. L. J. Jordan, incorporated.

Osteopaths Among Drugless Healers.—It is reported that at a recent meeting of the California Board of Medical Examiners action was taken refusing to recognize osteopathic colleges otherwise than as drugless practitioner institutions. Several osteopathic colleges were seeking recognition for their graduates with the right to secure the license of "physician and surgeon."

New Hospital Buildings to be Erected.—Dr. H. T. Summersgill, superintendent of the New Haven Hospital, has been appointed superintendent of the University Hospital in San Francisco. He is now in California to take charge of the present hospital of the University of California Medical School, and to aid in completing the plans for the new teaching hospital buildings, to erect which $615,000 has been given by various friends of the university.

CONNECTICUT

Yale Anatomist Goes to Philadelphia.—Dr. Jacob Parsons Schaeffer, professor of anatomy in the medical department of Yale University, has been elected professor of anatomy and director of the Daniel Baugh Institute of Anatomy and Biology of Philadelphia.

Hospital Alumni Dine.—At the third annual meeting of the St. Francis Hospital Alumni Association at Hartford, the following officers were elected: president, Dr. James F. Rooney, Hartford; vice-president, Dr. Frank J. Ronayne, Hartford; secretary, Dr. J. D. Hartnett, Winstead, and treasurer, Dr. David A. Flynn, New Haven.

Honorary Degrees.—At the 100th anniversary of the beginning of teaching in Yale University, the following honorary degrees were conferred on medical men: Master of Arts.—Dr. Edward Robinson Baldwin, assistant director of the laboratory at Saranac Lake, N. Y., for the study of tuberculosis; Dr. Fred Towsley Murphy, professor of surgery in Washington University, St. Louis; Dr. John Howland, professor of pediatrics in Johns Hopkins University, Baltimore; Capt. Charles Franklin Craig, M. C., U. S. A., officer in charge of the Army Biological Laboratory, Fort Leavenworth, Kan.; Dr. Elliott Proctor Joslin, assistant professor of the theory and practice of physics in Harvard Medical School; Dr. Henry Hun, professor of nervous diseases in Albany Medical College; Dr. Oliver Cotton Smith, Hartford, Conn., president of the Connecticut Medical Society and formerly surgeon-general of the state, and Dr. William Francis Verdi, New Haven, Conn. Doctors of Science.—Dr. Edgar Fahs Smith, provost of the University of Pennsylvania, Philadelphia, and Dr. Richard Pierson Strong, professor of tropical medicine in Harvard Medical School, formerly pathologist of the Bureau of Science of the Philippine Islands. Doctor of Laws.—Surg.-Gen. William Crawford Gorgas, U. S. Army.

DISTRICT OF COLUMBIA

Hospital Closed.—The Northern Dispensary and Emergency Hospital at 3121 Fourteenth Street, S. W., has been closed by order of the board of directors. The reasons assigned for closing the institution are lack of funds and loss of interest by the board of lady managers.

Personal.—Dr. Charles H. Richardson, Washington, has gone abroad.——Dr. Hulbert Young, chief inspector of the district health department, has been appointed supervisor of the commercial laboratories of Baltimore.——Dr. J. Lester Brooks has been appointed medical inspector by the health officer.——The title of Dr. William C. Fowler, in charge of the contagious disease service, has been changed to chief medical inspector.

The Pardon of Kemp.—The prison sentence of two years in the penitentiary of Dr. Thomas J. Kemp, son-in-law of Senator Fletcher of Florida, condemned for using the mails to distribute information regarding the procuring of abortion, was recently commuted by the president to the payment of the fine, waiving the prison sentence imposed by the court. At a meeting of the Washington Medical Society, July 23, President Wilson was severely criticized for his action, and Congressman Mann introduced a resolution before Congress asking that the papers in the case be transmitted to the House for examination.

ILLINOIS

New Officers.—Ogle County Medical Society at Polo: president, Dr. Robert E. Stevens, Rochelle; secretary, Dr. Josiah T. Kretsinger, Leaf River.

Physician's Murderer Found Guilty.—After twelve hours deliberation, a jury at Duquoin, August 1, found Jesse Joplin guilty of the murder of Dr. D. Winton Dunn, former mayor of Duquoin, and fixed his penalty at life imprisonment.

Dixon Epileptic Colony.—Sixty cottages will be under roof before winter at the new State Epileptic Colony at Dixon. Twenty will be erected to the south, twenty to the north, ten to the east and ten to the west of the administration building.

Personal.—Dr. Mary M. Mars, who was recently in charge of the inspection of the children of the Evanston schools, has become a member of the staff of the Breed Tuberculosis Sanatorium.——Dr. Mary L. Rosenstiel, Freeport, sailed for Europe, recently.

Supervisors Will Not Recommend Erection of County Sanatorium.—At the June meeting of the board of supervisors of Kane County, called to look into the matter of the establishment of a county tuberculosis sanatorium, a report was made opposing the establishment at present of such an institution, while acknowledging its value. The cause of the refusal was the heavy initial cost of the institution—$40,000—and the expense of maintenance.

Tuberculosis Institution Ready.—The new building of the dispensary of the Evanston Tuberculosis Institute at the corner of University Place and Maple Avenue, has been completed and the institution is in active operation. The hours for receiving patients are from 2 to 3 p. m., Mondays and Thursdays. The dispensary is under the medical supervision of Drs. William A. Phillips and William G. Alexander. It is expected that the general dispensary of the building will soon be ready to receive patients.

Chicago

Consumptive Relief Society.—During June the Jewish Consumptive Relief Society treated 250 cases, expended more than $520 for milk and eggs, and in addition cared for several patients at different hospitals at a cost of $150. Plans for the new sanatorium of the society are completed and bids for plans have been requested.

Neurologists Convention Closes.—The third annual session of the Alienists and Neurologists of the United States, conducted under the auspices of the Chicago Medical Society, has adjourned. The fourth annual meeting will be held in Chicago in July, 1915. During the week more than two hundred and fifty physicians registered, representing seventeen states.

Health Department Aid Not Needed by Supervising Engineers.—Dr. George B. Young, commissioner of health, is said to have been notified, July 24, by the board of supervising engineers that the department cannot be represented in connection with the work of the board. The intention of the health commissioner was to assist in the supervising of heating and ventilation devices for cars.

INDIANA

Disease Prevention Day.—Plans are being made for the observance in Indiana of disease prevention day. County organizations are being formed to cooperate with the state central organization in preparing the program of the day which is to be in October, the date to be fixed by the governor.

State Association Meeting.—The annual meeting of the Indiana State Medical Association will be held in Lafayette, September 23-25. Dr. George F. Keiper is chairman of the committee on arrangements. The sessions of the association will be held at the Y. M. C. A. building and the Second Presbyterian Church. The Hotel Lahr has been selected as the headquarters of the association.

Good Work in Porter County.—Porter County is taking high rank among the counties of the state in efficiency in preventive medicine. Health Commissioner Simon J. Young, who is also health officer of Valparaiso, has induced the county to build a new laboratory and to appoint an assistant, W. D. Little, a recent graduate of the department of sanitary science of the Purdue University, who will have charge of the health work and is now acting health commissioner. Among other work of the department is an extensive inspection of the milk-supply of the county. Preparations are also under way for the general observance of "health day," October 2.

MASSACHUSETTS

Health Bureau Moved.—The bacteriologic bureau of the Boston Board of Health moved July 27 from its old quarters on Huntington Avenue to the top floor of the new City Hall.

Fresh-Air Fund Appeal.—The Traveller's Fresh Air Association announces that it will require at least $5,000 to finish the season and to provide the outings that have been promised to the children of Boston.

New Hospital for Winchester.—The Visiting Nurse Association has purchased a site on Highland Avenue on which to erect a hospital, which is to be in Elizabethan style, of red brick construction with limestone trimmings. Plans for the building have been accepted, and the construction will commence in a short time.

Hospital Needs Funds.—President A. Shuman of the board of trustees of the Boston City Hospital has applied to the mayor for an addition of $46,000 to the budget of hospital expenses for the current year. Of this $13,200 is for increase in salaries, $1,500 for special police, and $3,500 for the installation of a sprinkling system.

Personal.—Dr. Frank G. Wheatley, North Abington, has been appointed vice dean of Tufts College Medical School, Boston.——Dr. M. Blanche Cooney, Haverhill, is the first woman to be appointed as medical examiner for women in the Catholic Order of Foresters of Massachusetts.——Dr. Freeman A. Tower, superintendent of the Burbank Hospital, Fitchburg, has resigned and will practice in Derry, N. H.

MICHIGAN

Upper Peninsula Society to Meet.—The Upper Peninsula Medical Society will hold its annual meeting at Houghton, April 11 and 12.

Tri-County Society Organized.—A Tri-County Medical Society was organized and effected a permanent organization recently at Memphis. The following officers were elected: president, Dr. Robert McH. Greenshield, Romeo; vice-president, Dr. Jacob H. Burley, Almont; secretary, Dr. Roy J. Pelton, Armada.

Personal.—Dr. Walter G. Paterson, Detroit, has sailed for Europe.——Friends and co-workers of Dr. Theodore A. McGraw, for twenty-five years a member of the staff of St. Mary's Hospital, Detroit, gathered at his home, June 30, and presented him with a handsome silver vase, suitably inscribed and filled with American Beauty roses.

Kalamazoo Academy Meets at South Haven.—The Kalamazoo Academy of Medicine held a meeting at the home of Dr. Arthur R. Elliott of Chicago, 3½ miles south of South Haven, July 25. The program was furnished by Dr. Charles E. Paddock, Chicago, who spoke on "Indications for Cesearean Section;" Albert E. Halstead, Chicago, who discussed the "Surgical Aspects of Gall-stones," and Dr. Arthur R. Elliott who spoke on "Some Medical Aspects of Gall-Stone Disease." Luncheon was provided by Dr. Elliott and his associates.

NEBRASKA

Personal.—Dr. Joseph T. Anthony, Omaha, has sailed for Europe.——Dr. Oscar H. Hahn has resigned after four years of service at the Nebraska Sanitarium, Hastings.

New Officers.—Knox County Medical Association at Creighton, July 21: president, Dr. Frank H. Kucera, Verdigre; secretary-treasurer, Dr. Glen E. Peters, Bloomfield.

Northwestern Nebraska Physicians Organize.—The Northwestern Nebraska Medical Association, was organized by physicians of Brown, Rock and Keyapaha counties at Ainsworth, July 24. Long Pine was selected as the next place of meeting. The following officers were elected: president, Dr. James M. Tische, Wood Lake; vice-president, Dr. William

O. Colburn, Stuart; secretary, Dr. James C. Tucker, Long Pine, and treasurer, Dr. Thomas J. Lawson, Long Pine.

NEVADA

Personal.—Dr. and Mrs. J. La Rue Robinson, Reno, have returned from Atlantic City.——Dr. Patrick J. Mangan, Winnemucca, has been appointed a member of the State Board of Medical Examiners, vice Dr. E. A. Wheeler, Goldfield, deceased.——Dr. A. D. Field, Reno, has moved to Cooledge, Neb., and Dr. John T. Rees, Wadsworth, has located in Denio, Nev.

NEW YORK

Reciprocity with Virginia.—A reciprocity agreement between the state of New York and the state of Virginia has been entered on for the endorsement of medical licenses, providing the applicants have complied with all the specified requirements.

May Abolish Ambulance Chasers.—The Workmen's Compensation Commission has adopted a resolution which states "that the commission declines to consider an agreement for compensation for legal services in connection with any claim arising under the law in advance of the performance of the services for which the claim is made; and that in all cases claims for legal services will be considered solely with reference to the actual service performed on a statement submitted to the commission on the conclusion of the service.

Commission to Study Feeble-Minded.—Governor Klynn has recently appointed a commission to investigate the problem of the feeble-minded in this state. The members are to serve without pay and are as follows: Mr. Robert W. Hebberd, Dr. Max G. Schlapp, Dr. Charles Loomis Dana, Prof. Stephen P. Duggan and Mrs. Mary C. Dunphy. The report of the commission is to be submitted before Feb. 15, 1915, with legislative recommendations. It is pointed out that there are 30,000 feeble-minded persons in New York while accommodations are provided by the state for only 4,000.

Progress of Infant Welfare Campaigns.—The three welfare exhibits of the State Department of Health have completed their first tour of the state. They have covered twenty-five counties and been shown in forty-four cities. The three exhibits were installed simultaneously each week in three adjacent cities, thus concentrating the campaign in a comparatively small territory. The results of the work are already apparent in the establishment of numerous welfare stations in the cities that have been visited and they have left a trail of enthusiastic and constructive welfare work shown by the formation of welfare committees, employment of visiting nurses and establishment of welfare stations. The attendance at the exhibits was very satisfoctory. In Syracuse it is reported that 24,000 persons viewed the exhibits and attended lectures.

New York City

Man Dies from Glanders.—Josè La Vadis, a Spanish mechanic, died from acute glanders in Bellevue Hospital, July 25. It is supposed that he contracted the disease while working in a livery stable in Jersey City.

Vacation Typhoid.—In warning vacationists as to care in the choice of summer resorts in order to avoid the danger of contracting typhoid fever, the Health Department calls attention to an investigation as to just what part vacation typhoid plays in the typhoid records of the city. The diagram of the average of ten years shows that typhoid cases in the city averaged from 15 to 37 a week except for the months of August, September and October, the months when summer vacationists get back to town. In these months typhoid illnesses reached a maximum of over 100 cases a week in September and receded to only 60 cases a week in October.

Personal.—Dr. Lewis A. Sexton has tendered his resignation as resident physician at Willard Parker Hospital to take effect August 1, and has accepted the position of superintendent of Johns Hopkins University Hospital, Baltimore. ——Dr. Benjamin Jabbon has received the honor medalion of the Servian Order of St. Sava in recognition of his services during the recent Balkan War in responding to an appeal to enter the Balkan service and assist in preventing the spread of cholera among the soldiers.——Among those who have sailed for Europe are Dr. Colin L. Beggs, Dr. and Mrs. Edward Everett Hicks, Dr. and Mrs. George Draper and Dr. Louis A. Ewald.——Dr. Walton Martin and Dr. David B. Jewett, Rochester, have returned from Europe.—— Dr. Charles White Berry, Brooklyn, has been appoined sanitary-supervisor of the state department of health.

Progress Against Venereal Diseases.—The work of the Department of Health in this field is increasing by leaps and bounds. Since the venereal diagnostic clinics were established in May, 1912, the average daily attendance has increased from two to three patients a day to an average of more than thirty-eight. At the present time about 120 Wassermann tests and 30 complement-fixation tests for gonococcus infection a day are being made. Seventy-five per cent. of the specimens examined are sent in by private physicians and institutions. During May, 1914, 127 cases were seen by the medical advisor and of these 15 had been previously treated by quack physicians. Placards have been placed in the toilets of saloons and other places in the city calling attention to the fact that confidential advice regarding gonorrhea, syphilis and sex diseases can be obtained free at Room 10, Department of Health, 149 Center Street, certain days of the week from 2 to 4 p. m. A very difficult problem has been the reference of patients having no family physician to a physician for treatment. Patients able to pay a private physician are given a list of the attending physicians of the various genito-urinary and dermatologic clinics maintaining the required standard. Cards of instruction to those having syphilis or gonorrhea have been printed and there is now in press a circular on the dangers of these diseases and on the methods of the advertising quack.

Amendments to the Sanitary Code.—At the meeting of the Board of Health on July 28 three amendments to the Sanitary Code which have been approved by the New York Academy of Medicine and the advisory council of the Board of Health were adopted. The first of these amendments alters the ordinance making it unlawful to have dogs in the streets or public places without muzzles in June, July, August and September, so that dogs will not be allowed in the streets or in public places at any time during the year without a muzzle. It is said that this is the first step in an effort to secure a dogless city. This ordinance will go into effect as soon as the Board of Health deems that sufficient opportunity has been given for owners of dogs to become acquainted with the ordinance. Another ordinance prohibits the use of wood alcohol or naphtha in any toilet or medicinal preparation and orders the adoption of a poison label which must have the skull and cross-bones and the following: "POISON.—Wood Alcohol or Wood Naphtha. *Warning.*—It is unlawful to use this fluid in any article of food, beverage or medicinal or toilet preparation for human use internally or externally." The word naphtha has been introduced with the hope that it will supplant the term wood alcohol and because it is desired to impress the fact that wood alcohol is wood naphtha and that it is poisonous. The third amendment aims to strengthen the Boylan law in regard to the sale of narcotic drugs. The short time during which the Boylan law has been in operation has served to show that however admirable it is it fails to restrict the use of habit-forming drugs to the extent hoped for, as so many ways of evading the terms of the law have been found. It is believed that the following ordinance will make the law more effective:

"No cocain or salts of cocain, alpha or beta eucain, either alone or in combination with other substances, or any substance under any other name giving a physiologic reaction similar to the physiologic reaction of cocain; and no opium or preparation of opium, and no morphin or salts of morphin, and no cannabis indica or preparations of cannabis indica, or the derivatives of either or any of the substances named herein, shall be held or offered for sale or sold or given away at retail by any person in the city of New York, except upon the written prescription of a duly licensed physician, veterinarian or dentist.

"Nothing hereinbefore mentioned, however, shall apply to compounded mixtures containing opium or morphin or cannabis indica or their derivatives for external use only, in the form of liniments, ointments, oleates or plasters."

To correct another nuisance the department passed an amendment designed to stop the adulteration and misbranding of commonly used medicines for internal use. For instance it was found that the formula for citrate of magnesia had been changed by one manufacturing druggist when citric acid increased in price so that the contents of each bottle of his citrate of magnesia was 30 per cent. weaker than formerly, while the price remained the same. Hereafter the strength must conform to the standards set up in the U. S. P.

OHIO

Trachoma at Avondale Children's Home.—Two cases of trachoma were found by Dr. H. Reasoner Geyer of Zanesville in the Avondale Children's Home, Muskingum County. These cases are being properly cared for at present, and special precautions are being taken to prevent the spread of the disease to other children.

Revises Limitation of Physicians' Fees.—As a result of the presentation of arguments by a special committee of the Ohio State Medical Association, the State Industrial Commission has granted a revision of the amendment to the workingmen's compensation law as to the limit of $200 as the maximum physician's fee.

Tri-County Sanatorium.—At a meeting held in Steubenville, July 15, the commissioners of Jefferson, Belmont and Guernsey counties agreed to the proposition of building a joint tuberculosis sanatorium, that a tract large enough to accommodate fifty patients will be sufficient, and that the cost of the building and grounds is not to exceed $50,000. A location in Jefferson County, near Richmond, is being considered.

Rat Campaign.—As a result of the advice issued to local boards of health, by Dr. Eugene F. McCampbell, secretary and executive officer of the Ohio State Board of Health, many cities and villages throughout the state have started antirat campaigns and the results so far have been good. The newspapers are giving considerable space to these campaigns and it is probable that an actual economy will result, as the damage rats do in Ohio is estimated to reach considerably over the $10,000,000 mark. Containers to forward rats found dead in river cities and villages have been sent out and preparations are completed to examine rats for plague in the Divison of Hygienic Laboratories.

Typhoid in Steubenville.—An epidemic of typhoid fever began in Steubenville about July 1. At the present time there are about fifty cases. An investigation by assistant state epidemiologist, Walter E. Obetz, of the staff of the State Board of Health has revealed the fact that a large proportion of the patients used water from a spring situated to the northwest of the city. An examination of the water showed it to be grossly polluted and the supply was immediately stopped. The water-supply of Steubenville is subject to considerable pollution and as a result a large proportion of the population use water from private sources. Many of these private sources are poorly protected, and epidemics like the present are unavoidable.

Board of Health Officers Confer.—The thirty-ninth conference of the Ohio State Board of Health with representatives of local boards of health was recently held in Cedar Point, Ohio. The conference was for boards of health and health officers of all villages of less than 3,000 population and all townships in the northern counties of Ohio. Under the Ohio law it is mandatory for each board of health to send a representative to these conferences when so ordered. The attendance was about 400 and nearly 200 health officers were present. The balance was made up of members and clerks of boards of health, mayors and members of council, and other representatives. The program lasted through four sessions and comprised addresses by members of the State Board of Health and lectures by members of the staff. Rural sanitation in its varied aspects was thoroughly discussed. The evening session was given over to two lantern demonstrations, the first illustrating the campaign against communicable diseases, by Frank G. Boudreau, M.D., director of the division, and the second on rural tuberculosis and industrial hygiene, by Dr. Emery R. Hayhurst, Columbus, director of the occupational surgery of Ohio. The secretary and executive officer, Dr. Eugene F. McCampbell, Columbus, gave an addess on the enforcement of public health laws.

PENNSYLVANIA

New Officers.—Lehigh Valley Medical Society at Birchwood Inn, recently: president, Dr. James A. Singer, East Stroudsburg; secretary, Dr. John W. Luther, Palmerton.

Physicians Ask to Have Registrar Retained.—A majority of the physicians of York have refused to sign the petition asking for the removal of Dr. John H. Bennett as registrar of vital statistics.

Personal.—Dr. Daniel N. Butler, U. S. N. (retired), Reading, has presented the Reading Public Museum with a collection of Alaskan Eskimo curiosities.——Dr. Martin E. Griffith, Monessen, sailed for Europe, July 18.

Philadelphia

Woman Held on Baby Farm Charges.—On July 28, the coroner's jury found Mattie Burk, colored, chargeable with the deaths of three colored children, who were victims of starvation at her alleged "baby farm." She was held without bail for the grand jury.

Personal.—Dr. Francis X. Dercum and J. William White have sailed for Europe.——Dr. George E. de Schweinitz has resigned as ophthalmic surgeon and has been appointed consulting ophthalmologist to the Philadelphia General Hospital. Dr. Edward A. Shumway has succeeded Dr. de Schweinitz as ophthalmic surgeon to the hospital.

Unclean Poulterers Arrested.—On July 31, the division of sanitation of the Bureau of Health opened a crusade to enforce regulations that will end the insanitary conditions under which 50,000 fowls are now killed in this city every week. Six Hebrew "Schochets" or chicken slaughterers were arrested and held under $200 bail for court by Magistrate Pennock on the charge of slaughtering without a license. In an inspection trip, one place on Fourth Street was typical. Here chickens were killed in a dark cellar, the floor was litered with a soggy mass of feathers, filth and blood and filthy coops, containing live chickens; 500 chickens a week were killed in this place. What the health officers say can be done to eradicate these conditions was shown at a model slaughter house recently erected on Kater Street near Seventh. The place has cement floors, is well lighted and ventilated, the chickens are cooped in separate rooms, in sanitary cages, and the slaughter rooms are equipped with tools which prevent blood being splashed over the place.

GENERAL

College Merger.—The North Carolina Medical College, Charlotte, will be merged with the Medical College of Virginia, Richmond, but will retain a nominal existence until it confers degrees on the three remaining classes of students. The students will receive the balance of their medical instruction at Richmond, but the degrees will be granted by the North Carolina Medical College.

Sioux Valley Physicians' Convention.—The nineteenth annual meeting of the Sioux Valley Medical Society was held in Sioux Falls, S. Dak., July 22, and the following officers were elected: president, Dr. Robert Evans, Fort Dodge, Iowa; vice-presidents, Drs. Julius A. Hohf, Yankton, S. Dak., and Charles L. Sherman, Luverne, Minn., and secretary-treasurer, Dr. George S. Browning, Sioux City, Iowa (reelected).

Surgical Congress Election.—At the annual meeting of the Clinical Congress of Surgeons of North America, held in London, the following officers were elected on July 31: president, Dr. Charles H. Mayo, Rochester, Minn.; vice-presidents, Drs. Herbert A. Bruce, Toronto, and Robert L. Dickinson, Brooklyn; secretary, Dr. Franklin H. Martin, Chicago (reelected), and treasurer, Dr. Allan B. Kanavel, Chicago (reelected).

Bequests and Donations.—The following bequests and donations have recently been announced:

Association for Improving the Condition of the Poor; Brooklyn Bureau of Charities and Brooklyn Hospital, each $3,792, by the will of Mrs. Jane A. Benson.

Mount Sinai Hospital, New York City, $1,000, by the will of Isadore Wormser.

Mount Sinai Hospital, New York City, and Montefiore Home, each $1,000, by the will of Adolph Magnus.

New York Lying-In Hospital, $5,000, St. Rose's Home, New York City, $3,700, by the will of Miss Lilla Gates.

Nassau Hospital, Mineola, L. I., $5,000, by the will of W. Burling Cook.

Seney Hospital, Brooklyn, one-seventh of the estate of Emalissa Purvis, valued at $16,000.

Pottsville, Pa., Hospital, $50,000, on the death of J. Gardner Muir.

St. Timothy's Hospital, Philadelphia, $5,000, by the will of Elizabeth E. Smith.

School Hygiene Congress.—An international school hygiene congress will be held in Brussels next year. The program takes up the following subjects: school buildings and equipment; medical inspection of urban and rural schools; prevention of contagious diseases in schools; the teaching of hygiene to teachers and parents; school hygiene in its relation to physical education of children; methods, syllabuses and school equipment in their relation to school hygiene; school hygiene in its relation to the children, and school hygiene in its relation to adolescents. The congress is under the patronage of the King of Belgium, and under the auspices of the National Institute of Pediology and the Belgian Pedotechnic Institute. The committee of organization is presided over by M. J. Corman, director general department of sciences and art, and Dr. J. Demoor, director of the Free Institute in Brussels. For information, and in all matters pertaining to the congress, address Dr. H. Rulot, secretary-general, 66 rue des Rentiers, Brussels.

FOREIGN

Association of French-Speaking Gynecologists and Obstetricians.—The first congress of this newly organized association is announced to be held at Lyons, October 1, with Professor Pollosson in the chair. There are twelve affiliated societies, including one each in Belgium and Switzerland, besides an official delegation from Canada.

First National Congress for Pediatrics in Spain.—The thirty-one resolutions adopted by the congress, held recently at Barcelona, under the auspices of the Sociedad Pediatrica española, embody the most advanced views on measures for child welfare, including education of the public in eugenics and censorship of "movies" for all under 20. One resolution urges the founding of a national Child Festival Day, a *Fiesta de la infancia*, to be held in the spring with great ceremony, to exalt the virtues of maternity and distribute prizes for the finest babies.

Deaths in the Profession Abroad.—Among the deaths not mentioned elsewhere is that of Prof. Paul Reclus, the well-known Paris surgeon. The cable states that he died July 29, aged 67. He held various decorations and offices in surgical and medical societies, did active political service in his home district in southern France and has published a number of works on surgery, especially on syphilis of the testicle and a manual of external pathology. He was surgeon in chief at the Hôtel Dieu, and the use of cocain in surgical operations is credited to him. It was mainly to test the value of cocain in local anesthesia that J. Regnault, a French army surgeon, performed an operation for hernia on himself in 1912 and carried it through successfully without pain.——A. Garofalo of Rome, Italy, aged 47, for seventeen years editor of that department of our exchange, the *Policlinico*, which deals with economic and other questions involving the material side of medical practice. He was also editor in chief of the *Clinica Ostetrica*. Under the pen-name of Dr. Cajus he was long a leader in matters of organization of the profession and molding public opinion.——Sir Christopher John Nixon, formerly president of the Royal College of Physicians of Ireland; professor of medicine in the University of Dublin; and member of the General Medical Council; honorary Fellow of the British Institute of Public Health; and vice-chairman of the University of Ireland; died at his home in Dublin, July 20, aged 65.

LONDON LETTER

London, July 24, 1914.

The Color Problem in Hospital Life

For more than a generation colored students, principally Asiatics, have attended the London hospitals. Until recently their presence has not given rise to any discussion. There is competition for students among the various hospitals, and the fees of colored students are as welcome as those of others. Their application and conduct generally does not appear to have been inferior to those of white students and they have fulfilled the duties of dressers and clerks satisfactorily. For some reason the question has recently been raised at certain hospitals as to whether their numbers should be restricted in the interests of the white students. From the patient's point of view, prejudice against the services of colored students certainly exists, but is not great. It must be remembered that in the country generally there is no such color line as exists in the United States and in our colonies. A colored man is treated according to his individual qualities exactly as a white man would be. Some colored men have gone into general practice in working-class neighborhoods where they are, if anything, more successful than the average white practitioner—a result which seems to be due to the fact that the public imagine that they possess some knowledge and skill peculiar to themselves. Any attempt to restrict colored men coming to our hospitals for training would certainly be discountenanced by the enlightened on imperial as well as humanitarian grounds. On the other hand, the giving of appointments to colored students which would place under their control sisters and nurses would be viewed with disfavor.

Deficiency of Surgeons in the Royal Navy

The British Medical Association has issued a report on the conditions of medical service in the Royal Navy which are somewhat unsatisfactory. In consequence of the altered international situation, British warships instead of being scattered all over the world, are now concentrated at home. The former pleasant alternations of home and foreign stations with ever-varying social and sporting facilities have gone, and in their place is a monotonous existence in outlandish parts of home coasts. Most men over 35 are married, and theirs is a hard struggle living in a mess afloat and maintaining homes on shore, which they rarely see—a position which has become acutely accentuated by the increased cost of living as well as by irksome regulations afloat. The disabilities of the Naval Medical Service have been multiplied and increased, and its old attractions have practically disappeared, while the Army Medical Service, in consequence of improved conditions (described previously in The Journal), has advanced in every direction, professionally and materially. The navy is about seventy officers short of its small establishment of ten years ago, although since then the fleet has increased to the extent of upward of 21,000, and the growing process continues. The exact numbers are not known, but it is obvious that at least from eighty to a hundred ships must, at the present minute, be short of complement of medical officers—a situation which would be in ghastly evidence if war broke out.

The Prevention of Infantile Summer Diarrhea

Summer diarrhea is the cause of high infant mortality in our great cities, and floods the outpatient departments of children's hospitals with tiny patients. In London a new departure has been made in dealing with the disease. On the principle that prevention is better than cure, the Queen's Hospital for Children, which is situated in a densely crowded poor district of the metropolis, summoned a meeting in the early part of the year to consider the problem. It was attended by members of local municipal bodies and charities in the neighborhood, and by representatives of the local government board. The following resolution was adopted, "that epidemic summer diarrhea is a preventable disease, dependent on a variety of conditions which can be best dealt with by concerted action on the part of public health authorities and voluntary organizations; and that borough councils and boards of guardians be urged to seek the cooperation of volunteer organizations for the purpose of supplementing the work of the borough councils' visitors, with a view to arranging a complete and thoroughly efficient system of home visiting in every case, in order that treatment prescribed at hospitals and other institutions, and by the general practitioners, may be enforced as far as possible. Further, that all medical charities and all medical practitioners be urged to undertake the voluntary notification to the medical officer of health of all cases that may be brought to their notice. A committee was formed to draw up simple rules for the prevention of summer diarrhea for the information of parents, and these have been widely distributed in suitable quarters. They include directions for the storage of milk and its protection against dust and flies, the disuse of "comforters," giving the child nothing but recently boiled water for twenty-four hours and then feeding with dissolved milk powder.

The Prevention of Insanity

A deputation consisting of members of Parliament and physicians waited on Mr. Herbert Samuel, president of the Local Government Board, to advocate the adoption of measures for the early treatment of mental cases with a view to prevention of insanity. They pointed out the necessity for the treatment of incipient cases without certification. The strong popular prejudice, the loss of liberty and the atmosphere of certified asylums combined to deter patients and their friends from seeking early and efficient treatment. Certification should be restricted to cases so serious that it had become necessary: incipient cases should have more opportunity for preventive treatment in reception homes, observation wards of poor law infirmaries, or the wards of general or special hospitals. Dr. Mott, the well-known neurologist, emphasized the desirability of getting mental cases to the hospital as early as possible and deplored the fact that they usually came for treatment only when chronic. Mr. Samuel gave a sympathetic reply and said he would direct the medical department of the Local Government Board to make a special study of the problem.

Needle Found in a Physician's Heart

At an inquest on a physician who was found dead at the hotel where he was stopping, a curious condition was described. He was addicted to the cocain habit and a hypodermic syringe and tablets were found at his bedside. Death was due to cocain poisoning. In the heart was found a

broken hypodermic needle. The medical evidence was to the effect that the needle had probably got into a vein and been carried to the heart. It had nothing to do with the cause of death. The brother of the deceased said that eighteen months ago the physician had in his possession a hypodermic syringe of which the needle had broken off.

Workman's Claim for Compensation for Obesity

As shown in previous letters to THE JOURNAL, the workmen's compensation act has given rise to many extraordinary claims for compensation for injury arising out of employment. The record appears to have been broken by the claim of a Scotch miner for compensation for obesity. He met with an accident from which he recovered, but his enforced idleness increased his natural tendency to obesity to such an extent that he found it difficult to follow his occupation. When he recovered, his employers ceased to pay him compensation, but he contended that they were still liable because as a result of his idleness he was getting too fat for manual labor. The arbitrators decided that this did not entitle him to compensation. He appealed to a court which took the opposite view. The case was then taken to the House of Lords (the highest court in the realm) where the decision was reversed and the arbitrators' award restored.

National Council for Combating Venereal Diseases

It has been decided to form a national Council for Combating Venereal Diseases. A number of private conferences have recently been held at which the question of forming such a body has been discussed. Sir Thomas Barlow presided, and among those who have taken part are Sir Rickman Godlee, Sir Francis Champneys, Sir Clifford Allbutt, Sir William Osler, Sir Henry Morris, Sir A. Pearce Gould, the Bishop of Southward, and Major Leonard Darwin. The council will be composed of representatives of the medical profession and the general public. The decision now come to is the outcome of the efforts spread over two years by a committee appointed by the Royal Society of Medicine and the Eugenics Education Society. Among its recommendations was one suggesting that popular education was one of the most necessary steps and probably the most effective for combating the ravages of venereal disease. The immediate provision of proper facilities for treatment was also strongly urged. The submission of this report was followed by the appointment of a further special committee, which discussed the procedure to be adopted to carry out the recommendations. The next development was the appointment of the royal commission, the proceedings of which have been reported in previous letters to THE JOURNAL.

PARIS LETTER

PARIS, July 17, 1914.

The Rights of the Surgeon

Called to see a patient, Dr. Reynier, agrégé and surgeon to the hospitals of Paris, diagnosed an abscess of the appendix, necessitating an operation. His fee was to be 3,000 francs ($600). When the operation was begun, Dr. Reynier discovered that the appendix was intact, but that there was an abscess of the kidney, and he operated for this abscess. Now the patient refused to pay the 3,000 francs agreed on to the surgeon, alleging that if she had acquiesced to the payment of such a sum she had done it only because the operation was to be on the appendix, and not on the kidney, an operation which should not be worth more than 500 francs ($100). The case was taken to court and Dr. Reynier won the suit. The decision affirmed that the surgeon is always at liberty to perform any operation which he may think necessary for the welfare of the patient, without being held to account for the specific nature of the operative measures which he has taken in good faith, with the intention of curing the affection which he knows exists.

Local Anesthesia in Abdominal Operations

The last sessions of the Société de chirurgie were devoted to very important discussions on the use of local anesthesia in abdominal operations. Professor Reclus, who was the originator of this mode of anesthesia, recalled that when, twenty-seven years ago, he addressed the Société de chirurgie for the first time on the 111 operations which he had performed with local anesthesia, cocain had a bad reputation. The discovery of novocain has widened the field of local anesthesia. As this substance has no vasoconstrictor power, it is well to use it with epinephin. The following solution makes a perfect anesthetic: serum, 100 c.c.; novocain, 0.5 gm.; epinephrin, 1:1,000, 25 drops. Reclus asserts that the surgeon should have the patience to perform in this manner all exploratory laparotomies, radical cures for eventration and hernia, gastrostomies, artificial ani and the ablation of all tumors whose anatomic position is known, cysts of the ovary and hydatid cysts of the liver in particular. If, in the course of the operation, adherences or unforeseen difficulties are met, mixed anesthesia may be used, and a few whiffs of chloroform or ether be given. The patient falls asleep more rapidly, because he is under the influence of the novocain. Furthermore, as Crile demonstrated, disintegration of the cerebral cells is avoided, owing to interruption of nervous influx. Reclus recently had occasion to perform a whole series of abdominal interventions, in particular the extirpation of a cancer of the transverse colon, without the help of general anesthesia, but merely by the use of local anesthesia.

Dr. Chaput, surgeon to the hospitals of Paris, has been an advocate of Reclus' idea for some time. He has used local anesthesia in resection of the maxilla and amputation of the breast, but as a rule he reserves this method for debilitated cases, generally employing lumbar anesthesia, which is, he says, a rapid, complete, simple and benign process.

Professor Quénu uses local anesthesia among all tainted or infected patients, in cases of angiocholitis when he must perform an emergency cholecystostomy. He does not agree with those who think that they cannot use this method in cases of abscess or phlegmon; it can be done by beginning the anesthetic line on the healthy skin and extending it to cover the inflamed zone. But in the question of exploratory laparotomy he differs entirely from Reclus: he considers that the patient should be put to sleep in order to have a complete examination of the abdomen.

Dr. Tuffier, agrégé and surgeon to the hospitals of Paris, had occasion to employ local anesthesia in pulmonary surgery. After having anesthetized the line of incision, he opened the intercostal space and anesthetized the intercostal nerve. He could avoid the ribs in a considerable proportion, and, in one case, explore the apex of the lung which he intended excising, detach the adhesions and make an artificial pneumothorax. In another case he performed a pneumolysis. The patients operated on felt no pain at any time, and, moreover, it was possible, by having the patient make an effort, to inflate the lung and to keep it from contact with the pleura, which makes useless methods of hyperrepression and hyporepression.

Professor Lejars dwelt on the advantages which the use of local anesthesia brings in operations on the stomach, by avoiding the pulmonary complications which are the darkest place in the realm of surgery. Professor Hartmann was equally impressed with the frequency of pulmonary complications following operations on the stomach; at one time he performed all gastro-enterostomies with local anesthesia, but he had nevertheless continued to observe some accidents.

Dr. Walther, agrégé and surgeon to the hospitals of Paris, thinks that even for exploratory laparotomies it would be possible to use novocain in all cases in which the extent of the lesions of the tumor to be operated on are known; but the case is not parallel when an indeterminate lesion must be sought. Walther thinks that in the particular case of appendicitis, local anesthesia should be of great service. It is evident that if one happens on widely spread and unexpected lesions, adhesions or an extended region of inflammation, ether or chloroform must be given. He had noticed, as had Reclus, that patients go to sleep rapidly. Localized anesthesia presents further the immense advantage of obviating all the inconveniences which follow the use of chloroform; the patient can resume an almost normal life a few hours after the operation. There are some cases of intolerance, however, and Walther has observed a patient who was operated on in the morning and who presented a whole series of accidents in the afternoon (vomiting, syncope, profuse perspiration); he had been given a very small injection, but he was a very nervous and particularly impressionable subject.

Professor Pozzi thinks that local anesthesia in laparotomies could be advocated in a certain number of cases; for example, in all gastrostomies and in colostomy; but when laparotomy is undertaken, it is an entirely different question. This is the case in gynecology, in which one is always liable to meet surprises. To be sure, recourse may be had to mixed anesthesia, but certain patients resist, struggle and make efforts which bring on a certain degree of evisceration; this

last sometimes a quarter of an hour; but even if this intermediary period should last only a few moments it is an intermission which compromises the security of the operation.

Professor Schwartz is a partisan of local anesthesia in all well-defined operations such as hernias, gastrostomies and colostomy. It is not the same thing in exploratory operations.

On the other hand, Dr. Rochard, surgeon to the hospitals of Paris, thinks that in laparotomies the patient should be immovable and calm, a state which cannot be obtained except by general anesthesia. So, even if a certain number of easy operations can be performed with local anesthesia (hemorrhoids, fistulas of the anus, hydroceles, operations on the fingers) up to amputations, it is preferable to put the patient under the anesthetic, because you should do to others as you would they should do to you; and Rochard would never care to be operated on by any method of local anesthesia if he had to have a limb amputated.

Dr. Morestin, agrégé and surgeon to the hospitals of Paris, spoke of the benefits which have come from regional anesthesia in surgery of the face. It is possible to anesthetize the entire under lip by infiltration of the suborbitary nerve, and the entire lower lip by passing the needle through the mental foramen; the deadening of sensation is then rapid and complete. Thus one can make all restorations of the labial contour in cases of traumatic dents, or for harelips which have been inefficiently treated. By filling the pterygomaxillary cavity with novocain and making several injections at the level of the posterior foramens of the palate, a complete analgesia of the covering of the palate is obtained; that of the tongue may be obtained by infiltration of the lingual nerve.

Association of French Physicians

L'association générale des médecins de France just held its fifty-fifth annual general assembly. Dr. Darras, treasurer-general, outlined the financial situation. The association has distributed, since the last meeting, more than 200,000 francs ($40,000) for pensions and assistance; there was on hand more than 6,000,000 francs ($1,200,000), which included the possessions of the ninety-three local societies. Since its founding, the association has paid in pensions and assistance a total sum of 54,500,000 francs ($10,900,000), of which 1,825,000 francs ($365,000) went to members and the rest to the widows and orphans of members.

Jubilee of Professor Metchnikoff

Next year Elie Metchnikoff, assistant director of the Institut Pasteur, will enter his seventieth year. This anniversary will coincide with the fiftieth anniversary of his entrance into scientific life; his thesis for his doctorate in science dates back, in fact, to 1865. A committee has just been formed, under the presidency of Dr. Roux, director of the Institut Pasteur, to celebrate the scientific anniversary of Professor Metchnikoff. This committee has decided to present him with a book in honor of the occasion, a collection of unpublished scientific works of members of the Institut Pasteur and foreign scientists.

BERLIN LETTER

BERLIN, July 18, 1914.

Special Treatment in Charlottenburg Public Hospital

The recognition that, in accordance with the progress of specialism, the work of a public hospital can no longer be limited to internists, surgeons and gynecologists, led some years ago to the engagement in some of the hospitals of specialists as consultants. The Rudolph Virchow Hospital in Berlin has established two wards for dermatology, each of which is put under a separate director. Now the municipality of Charlottenburg is contemplating the enlargement of the Westend municipal hospital by a pavilion for treatment of the specialties. In this building, patients who are being treated in the hospital because of an internal or external disease will find suitable care when they need special services in addition to the treatment of their principal ailment. This will include such treatments as those for the eye, the ear, the throat, nose, teeth and treatments with radium and Roentgen rays. In addition, there will be provision for rooms for gymnastic exercises and for gymnastic and medical apparatus. Here will be treated not only the inmates of the hospital but also convalescents who have been dismissed from indoor treatment. The entire cost of this new building will be about $85,000 (340,000 marks).

Regular Measuring and Weighing of Schoolchildren

According to a resolution of the Berlin School Board, the children entering the public schools are to be measured and weighed regularly once every six months for the first two school years. The practical ground for this action is found in the idea that by the determination at the proper time of a standstill or retrogression in the physical development, the occurrence of severe disturbances of health may be prevented. Children in whom such defects are observed will be provided free of charge with breakfast and lunch. It is hoped also that scientifically valuable facts will be learned through these weights and measures. For normal children, the connection between the intellectual capability and the increase in height and body weight has been determined by experimental psychologic investigations. By these investigations a supplement to this material will be obtained for children that are not sufficiently developed intellectually.

Social Service in the Hospitals

A short time ago, a committee of social philanthropy for the sick was formed. Societies of girls and women will carry out the task of instituting a social philanthropy in the municipal hospitals of Berlin and some of the suburbs. In this project, the principal idea is that the recovery of the patients is often hindered or interrupted if the anxiety for their dependents prevents their securing mental quiet. Often they leave the hospital prematurely for this reason, and thereby imperil the success of medical treatment. An effort will be made to determine the domestic conditions of patients and to provide in a suitable way for their dependents. Further opportunities for work will be secured for patients even after their dismissal. The first step toward the support of mothers with infants will be taken, and a convalescent station will be provided. From one to three directresses, who serve without pay, will be provided for each hospital, according to its size. They will also have representatives who will have regular consultation hours at the hospital. In addition to these, there will be voluntary assistants in service at the same time.

Hygiene in the Prussian Parliament

Some of the representatives complained that the air in the Prussian parliament house was susceptible of improvement and the wish was expressed that an ozone apparatus should be installed. As a result, the Berlin University Hygienic Institute was requested to investigate the ventilation conditions of the parliament building. On the basis of the tests undertaken, the request of the representatives was refused by the minister of public work as without foundation. According to the investigation, the temperature, humidity and carbon dioxid content of the air were found to be very favorable and it was shown that the heating and ventilating arrangements were in working order. The air conditions even at the close of a very crowded session corresponded completely to hygienic requirements, and it was shown in particular that an increase of material which could be oxidized by ozone was not present to any considerable extent.

Finally, it was justly shown in the answer of the minister that there are serious hygienic objections to the introduction of large amounts of ozone in rooms which serve for the assembly of human beings, because ozone possesses the properties of irritating the mucous membranes of the air passages and when in large quantities is capable of producing conditions resembling narcosis.

Personal

H. Fasbender, professor extraordinary of gynecology, died July 12, at the age of 71, at Berlin. Fasbender used to be one of the most noted gynecologists of Berlin. He belonged to the era in which diseases of women were treated with few operations, and as he held fast to these principles, he was very popular among women who were afraid of the knife. In late years he devoted himself largely to historical studies and has published a comprehensive work on the history of obstetrics.

Petition for a Professorship for "Drugless Therapy"

The German Association of Practitioners of Physico-Dietetic Therapy—Naturheillehre—has petitioned the Prussian parliament that hospitals shall be provided for their methods of treatment under the supervision of physicians who are

recognized by the association, and that professorships shall be established and filled to suit the petitioners. Finally, they demand representation in the national organizations which advise with reference to public health. The government refused this peculiar request for the following reasons: No one is hindered from applying the methods of drugless therapy, not even a university professor, so that there is no prejudice against these methods. There are no professorships for special methods of treatment and cannot be. To erect hospitals in accordance with the principle demanded is not properly within the sphere of the government. As to representation in the officially recognized organization, it must be considered that any physician who enjoys the confidence of his colleagues may be elected to office in the medical councils and thus it is open to everyone. For election to the controlling body in state medical affairs, other points are of importance rather than how a particular patient shall be treated.

Causes of Death in Prussia

The following table gives the relations of the principal causes of death in Prussia for the years 1909-1912:

	1909	1910	1911	1912
Total deaths	....	....	696,854	636,303
Diseases of digestive organs per 10,000 inhabitants	....	18.96	27.34	15.94
Senile debility	....	16.92	17.39	17.37
Tuberculosis	15.59	15.29	15.12	14.58
Diseases of circulatory organs	....	14.49	15.11	15.44
Pneumonia	14.55	13.03	13.68	13.48
Apoplexy and other nervous diseases	11.38	10.62	10.88	10.57
Congenital debility and developmental defects	11.34	11.06	11.32	10.55
Diseases of the respiratory organs	9.59	8.79	8.75	8.69
Cancer and other neoplasms	7.54	7.92	8.07	8.15
Deaths from contagious diseases	166,610	156,698	161,344	156,907
Percentage of all deaths	24.86	24.56	23.15	24.66

Statistics of Venereal Disease

The statistical offices of the large cities in Germany in cooperation with the German Society for the Suppression of Venereal Diseases, established an investigation with regard to the distribution of venereal diseases in the large cities of Germany, which was carried on from November 20 to December 20, 1913, and the results of which are now available in part.

At a recent meeting of the Berlin Dermatological Society, Blaschko made a report on the results of the Berlin investigation. Although not one-half of the Berlin physicians and even of the specialists of dermatology and neurology (only 48 per cent.) returned answers, there were found in the period of investigation 20,000 persons under treatment for venereal diseases. When it is considered that many cases remain untreated and are treated by quacks, one may assume that there were double this number. The accession of new cases amounted alone to 7,552. In reality it is quite 15,000, which would mean for Berlin during the entire year an addition of 180,000 cases of venereal diseases. Among the new cases, syphilis represented 46 per cent.; gonorrhea, 49 per cent.; but in the syphilis figure a number of relapses treated are included. If the access of fresh cases alone is considered (syphilis 27 per cent. and gonorrhea 80 per cent.), of these two diseases the proportion is: gonorrhea alone, 65 per cent., fresh syphilis, 24 per cent.

Reckoned for the year this would amount to 18,000 cases of fresh syphilis. The proportion according to sex is: women 1 to men 2.8; in gonorrhea 1:3.6; in fresh syphilis 1:2. One case in nine received hospital treatment; in syphilis, every seventh to eighth case; in fresh lues, every fourth to fifth; in gonorrhea, only every tenth. The hospitals sent complete reports, but the number of dispensary patients must have been double that reported and the percentage of those treated in the hospitals only half as large as given above. A striking fact is the large number of cases of paralysis and tabes. In the course of the month, there were 1,874 cases of this kind under treatment. The access of fresh cases of this kind amounted to 167, which would be for the year 2,000 cases, of which 1,450 were among men. This is a figure which amounts to 8 per cent. of the new cases of syphilis, and it seems strikingly large.

In conclusion, the lecturer recommended a repetition of the statistical investigation in the near future. As the collection of the material often imposes quite unusual demands on physicians who are otherwise overloaded with clerical work, he suggests that in order to secure the participation of all physicians an obligatory report be required, which, to be sure, could be carried out only by legal enactment with payment for the reports, according to the English custom.

VIENNA LETTER

VIENNA, July 17, 1914.

Restriction of the Number of Medical Students in Vienna

As mentioned in previous letters, the increasing numbers of students flocking to the Vienna University caused such an overcrowding in our teaching institutes that these were utterly unable to cope with them. Now, instead of doing the most natural thing—enlarging the institutes or building new ones—the government thought best to return to medieval measures and to restrict the number of students admitted to the courses, as if we had enough doctors in this country. It is true, in the larger towns and cities we have an abundance of medical men, but in the country districts the lack of qualified men is seriously felt. The constant lack of funds for philanthropic or cultural requirements is one of the saddest consequences of the unsettled political situation in which this country has found itself for more than twenty years. The restriction of medical students, or the "numerosus clausus," as it is termed here, has been ordered by a special ordinance of the ministry of education. It will be in force one year temporarily, according to present report, and the following plan has been adopted: Not more than 400 students will be admitted to the first-year courses. In first line, only those are eligible who are born in Vienna or lower Austria or in those countries which have no university. If these first-year students should be less than 400 in number, then the students from other Austrian countries will be admitted, and in third line, students from abroad. Of course, these regulations do not apply to students who already have matriculated in Vienna or to postgraduate work. The plan has met much opposition and the order has caused much dissatisfaction in medical circles. Not only does it follow methods too closely which were used in former times by guilds to keep off competition, but it also positively harms the reputation of the Vienna University, which has always stood high for liberty in scientific study, especially in medical matters.

New Regulations for Notification of Infectious Diseases

The new epidemics act stipulated that no longer need cases of a number of infectious diseases, including measles, German measles, erysipelas and puerperal fever, be reported to the board of health; but lately an "appendix" has been published which requires that notification of these diseases should nevertheless be made at once, if they occur in health resorts, in schools, prisons and similar institutions containing a considerable number of inmates. Experience has proved that the neglect of notification has been followed by an increase in the number of cases, as contagion was not guarded against.

Expenditures for Sanitary and Social Purposes

In the budget of 1914-1915, several interesting items claim the attention of the medical circles. A sum of over four million kronen (about $900,000) has been set off for sanitary purposes; for combating infectious and epidemic diseases, for water-supplies and drainage of certain districts, for isolation hospitals and nurse-schools. Especially the fight against malaria in the southern districts of our empire requires great attention on the part of our board of health, also pellagra (in Tyrol and the east). Trachoma is still present in the east and southeast and a special lepra hospital in Dalmatia receives also a substantial grant. Furthermore a sum of 500,000 kronen ($100,000) has been spent for the purpose of a lupus home in Vienna. Considerable sums have been devoted to help the establishment of bacteriologic-diagnostic laboratories all over the country. The serotherapeutic institute in Vienna requires 200,000 kronen ($40,000), the pharmacologic-chemical institute receives 50,000 kronen ($10,000), the institute for hydrophobia (rabies) inoculation gets 10,000 kronen ($2,000), and the vaccination (cow's lymph) institute gets 70,000 kronen ($14,000). Furthermore, the publication of instructive leaflets regarding the prevention of infant mortality and sexual diseases, and of general hygiene, is also provided for.

Transmission of Peruvian Verruga to Animals.—The *Cronica Medica* of Lima, 1914, XXXI, 109, brings an illustrated description of the successful inoculation of rabbits, dogs, sheep, goats, asses and small monkeys by subcutaneous injection of material from the skin lesions of verruga patients. The work was done by Ribeyro, Mackehenie and J. Arce. Immunity was conferred by successful inoculation.

Marriages

ORVAL JAMES CUNNINGHAM, M.D., Kansas City, Mo., to Miss Grace Margaret Quinlan of Chicago, June 7.

HENNING VITALIS HENDRICKS, M.D., Hardwick, Mass., to Miss Jennie M. Burnett of Underhill, Vt., June 24.

GORDON LAWRENCE MCCLELLAN, M.D., Big Sandy, Mont., to Miss Ida Slysse Hein of Dover, Minn., June 30.

HUBERT SHATTUCK HOWE, M.D., New York City, to Miss Mary Sinsabaugh Gallup of Denver, July 21.

ELEXIOUS THOMPSON BELL, M.D., to Miss Cecile Stuart Porcher, both of Minneapolis, Minn., July 29.

MURDOCH CAMPBELL SMITH, M.D., to Miss Helen Emery Cruickshank, both of Lynn, Mass., July 11.

JOHN DANIEL O'BRIEN, M.D., to Miss Florence Mary McCrea, both of Canton, Ohio, June 17.

CHARLES EDWARD EATON, M.D., to Miss Caroline A. Bull, both of Seattle, Wash., July 22.

THOMAS IRVING STINES, M.D., to Miss Laura Lee, both of East St. Louis, Ill., July 28.

Deaths

Evan Norton, M.D. Washington University, Baltimore, 1869; a Confederate veteran; for more than twenty-five years a member of the board of trustees of the Conway (S. C.) high school; and for twelve years auditor of Horry County; editor of the *Horry Herald* from 1876 to 1886; once president of the Horry County Medical Society; and a member of the county board of medical examiners; died at his home in Conway, S. C., July 21, from pellagra, aged 72.

Charles L. Williams, M.D. Bellevue Hospital Medical College, 1867; a Confederate veteran; a member and once vice-president of the Medical Society of Georgia; for many years a member of the city council, city physician and police commissioner of Columbus, Ga.; died at his home in that city, July 16, from acute dilatation of the heart, aged 70.

James Forster Alleyne Adams, M.D. Harvard Medical School, 1866; a Fellow of the American Medical Association; one of the most prominent practitioners of western Massachusetts; consulting physician to the House of Mercy, Pittsfield; a medical cadet in the Navy during the Civil War; died at his home in Pittsfield, Mass., July 27, aged 70.

Thomas L. Hutchison, M.D. Kansas City (Mo.) Medical College, 1902; a member of the Kansas Medical Society; formerly a specialist on diseases of the eye, ear, nose and throat of Wichita, Kan.; while of unsound mind, shot and killed his two daughters and himself, at his office in Glenwood Springs, Colo., July 21, aged 43.

Theodore Erskine Hamilton, M.D. College of Physicians and Surgeons in the City of New York, 1861; surgeon of the Eighth Connecticut Volunteer Infantry during the Civil War; for many years a member of the staff of the Springfield (Mass.) Hospital; died at his home in Springfield, July 21, from cerebral hemorrhage, aged 80.

Edward Everett Haynes, M.D. Jefferson Medical College, 1890; for three years a member of the New Jersey legislature; postmaster of South Amboy, N. J.; a member of the common council for one term; a member of the board of education; and president of the local board of health; died at his home, June 24, aged 54.

Henry J. MacDonald, M.D. Willamette University, Salem, Ore., 1886; a Fellow of the American Medical Association; local surgeon at Morris Park for the Long Island Railroad; for many years chief of staff of St. Mary's Hospital, Jamaica, N. Y.; died in Long Island College Hospital, July 22, after a surgical operation, aged 62.

Alexander B. McGregor, M.D. Detroit College of Medicine, 1902; a Fellow of the American Medical Association; aged 39; of Cheboygan, Mich.; while responding to a professional call in Cheboygan, in his automobile, was struck by a freight train and instantly killed, July 14.

William Joseph O'Byrne, M.D. Bellevue Hospital Medical College, 1870; for thirty-seven years a practitioner of the Bronx, New York City; died at his home, July 19, from heart disease, aged 69.

David Philip Miller, M.D. Keokuk Iowa Medical College, 1895; of Chicago; a Fellow of the American Medical Association; formerly professor of physiology in Illinois Medical College; died in the Henrotin Hospital, Chicago, July 22, after a surgical operation, aged 41.

Delmso A. Walden, M.D. Rush Medical College, 1870; a surgeon of volunteers during the Civil War, and later a surgeon in the Indian troubles in Nebraska; for many years surgeon of the Burlington System at Beatrice, Neb.; died at his home in that city, July 22.

Henry McCrea, M.D. University of Michigan, Ann Arbor, 1875; Bellevue Hospital Medical College, 1876; for thirty-eight years a practitioner of Marlette, Mich.; coroner of Sanilac County in 1878 and 1879; died at his home in Marlette, recently, aged 70.

Clifford P. Johnson, M.D. University of Kansas, Lawrence and Kansas City, 1909; a member of the Kansas Medical Society; died suddenly at the home of his father in Coffeyville, Kan., from acute dilatation of the heart following typhoid fever, aged 31.

Jacob Jacques Fabian, M.D. Vanderbilt University, Nashville, Tenn., 1907; of Grand Rapids; a member of the Michigan State Medical Society; after rescuing a woman from drowning at Reed's Lake, Mich., July 28, became exhausted and was drowned, aged 30.

Frank E. Courtright, M.D. Starling Medical College, Columbus, Ohio, 1897; a Fellow of the American Medical Association; for fifteen years a practitioner of Shawtown, Ohio; died in Toledo, Ohio, July 21, after an operation for appendicitis, aged 45.

Henry Knox Stratford, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1865; Bennett Medical College, Chicago, 1888; surgeon at Camp Douglas during the Civil War; died at the home of his daughter in Austin, Chicago, July 28, aged 92.

Charles Gartner, M.D. Albany (N. Y.) Medical College, 1895; also a graduate of the Albany College of Pharmacy; for nineteen years a practitioner of Brooklyn; died in the Lutheran Hospital in that city, July 25, from heart disease, aged 44.

Charles Segerlund, M.D. Bennett Medical College, Chicago, 1897; a Fellow of the American Medical Association; secretary of the Caledonia (Ill.) Mutual Telephone Company; was instantly killed by a train near Caledonia, July 24, aged 47.

Clarence Cullen Seabrook, M.D. University of Pennsylvania, Philadelphia, 1878; died at his home in Burlingame, Kan., July 11, from the effects of a fracture of the hip received in a fall down cellar in his home a few days before, aged 60.

J. C. Davidson (license, Tenn., 1889); for more than half a century a practitioner of Putnam and Jackson counties, Tenn., and a resident of Pine Fork; died at the home of his brother-in-law near Cookeville, Tenn., July 16, aged 73.

Henry Adolphe Richy, M.D. College of Physicians and Surgeons in the City of New York, 1889; a captain in the French Army during the Franco-Prussian War; died suddenly in his office in New York City, July 18, aged 75.

George Ethelbert King, M.D. Kentucky School of Medicine, Louisville, 1898; for many years a practitioner of Mason County, Ky.; died at the home of his brother near Mt. Carmel, Ky., July 20, from tuberculosis, aged 44.

Michael Francis O'Kourke, M.D. College of Physicians and Surgeons in the City of New York, 1902; a member of the attending staff of St. Vincent's Hospital, New York City; died at his home, from pneumonia, July 22, aged 36.

James Edward Nelson, M.D. Georgetown University, Washington, D. C., 1895; for many years a member of the board of medical examiners in the Pension Bureau, Washington; died at his home in that city, July 22.

Hagop H. Thoumaian, M.D. Northwestern University Medical School, Chicago, 1896; of St. Anne, Ill.; a Fellow of the American Medical Association; died in the Presbyterian Hospital, Chicago, July 18, aged 47.

Leslie Levi Wiles, M.D. Syracuse (N. Y.) University, 1911; a member of the Medical Society of the State of New York; died at his home in Amsterdam, N. Y., July 17, from scarlet fever, aged 24.

William S. Stanfield (license, Tenn., 1889); for more than fifty years a practitioner of Obion County, Tenn.; died at his home in Obion, about July 20, aged 75.

Charles B. Lee, M.D. Southern Medical College, Atlanta, Ga., 1884; a member of the Tennessee State Medical Association; of Edgemoor, Tenn.; died in Scarboro, Tenn., June 23, aged 60.

Walter L. Landrum, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1910; of Taylorsville, Ga.; was shot and killed in a quarrel near Taylorsville, July 27, aged 37.

Archibald S. Watkins, M.D. Vanderbilt University, Nashville, Tenn., 1893; city health and quarantine officer of Tehuacana, Tex.; died at his home in that city, July 21, aged 62.

John Milton Singleton, M.D. Kansas City (Mo.) Medical College, 1884; a member of the Missouri State Medical Association; died at his home in Kansas City, July 21, aged 57.

Thomas Oliver Keator, M.D. Dartmouth Medical School, Dartmouth, N. H., 1875; formerly health officer of Rochester, N. Y.; died at his home in Accord, N. Y., July 6, aged 60.

Charles Feathers (license, Ark., 1903); of Farmington, Ark.; died in the Fayetteville (Ark.) City Hospital, July 13, a few days after an operation for appendicitis, aged 33.

Edgar Wilard Clark, M.D. Hahnemann Medical College, Chicago, 1868; a veteran of the Civil War; mayor of Neenah, Wis., in 1887; died at his home in Los Angeles, recently.

Andrew Baylies, M.D. New York University, New York City, 1879; a member of the Massachusetts Medical Society; died at his home in Worcester, Mass., July 7, aged 75.

Agnes Binford McCrea, M.D. College of Physicians and Surgeons, Los Angeles, 1913; of San Francisco; died at the home of her parents in Los Angeles, July 23, aged 27.

Jeremiah Chapman Wasson, M.D. Vanderbilt University, Nashville, Tenn., 1880; a Confederate veteran; died at his home near Rhea Springs, Tenn., July 20, aged 77.

Mary Vail Grinnell (license, Vt., 1887); for thirty-four years a practitioner of Vermont; died at her home in Rutland, about July 10, from appendicitis, aged 59.

William W. Farr (license, Miss., 1882); of Bolton, Miss.; aged 65; while making a professional call near that place, July 18, was run down by a train and killed.

James Foster Wilson, M.D. University of Pennsylvania, Philadelphia, 1895; of Philadelphia; died at the home of his brother in that city, July 24, aged 42.

John W. Tuthill, M.D. Eclectic Medical Institute, Cincinnati, 1878; a veteran of the Civil War; died at his home in West Milton, Ohio, July 24, aged 82.

William Wesley Grim, M.D. Western Pennsylvania Medical College, Pittsburgh, Pa., 1892; died at his home in Volant, Pa., July 13, from heart disease, aged 52.

Thomas Arthur McMurtry, M.D. University Medical College, Kansas City, Mo., 1895; died at his home in Carthage, Mo., July 12, from nephritis, aged 43.

Ernest A. Hendricks, M.D. Birmingham, Ala., Medical College, 1908; died at his home in Tuscola, Texas, about July 2, from tuberculosis, aged 30.

John Duke McFaden (license, Kansas, 1901); of Ames, Kan.; died at the home of his mother in Concordia, Kan., June 30, from heart disease.

Elbert A. Moye, Jr., M.D. Jefferson Medical College, 1895; died at his home in Greenville, N. C., July 8, from cerebral hemorrhage, aged 45.

John T. Bowen, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1889; died at his home in Crawford, Ga., July 14.

Edwin J. Farr, M.D. Castleton Medical College, Castleton, Vt., 1851; died at his home in Eau Claire, Wis., July 10, aged 82.

John V. Hennessy, M.D. Albany, N. Y., Medical College, 1884; died at his home in Albany, N. Y., July 13, from heart disease.

Gillum Taylor Ragan, M.D. University of Georgetown, Washington, D. C., 1866; died at his home in Neogo, Ill., July 9.

Joseph B. Westcott, M.D. Chicago Homeopathic Medical College, 1890; died in Newton County, Ind., about July 8.

George Henry Christie, M.D. McGill University, Montreal, 1872; died at his home in Lachute, Que., May 12, aged 62.

William T. Delaney, M.D. Jefferson Medical College, 1861; died at his home in Bristol, Tenn., July 18, aged 78.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE NEW YORK INSTITUTE OF SCIENCE*

Another Fraudulent Concern Denied the Use of the Mails

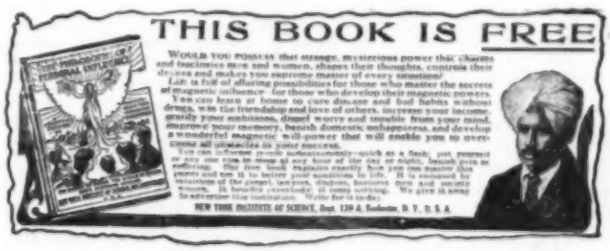
One more of the Neal-Adkin syndicate of frauds was denied the use of the United States Mails when a fraud order was issued against the New York Institute of Science, Rochester, N. Y. E. Virgil Neal, the original president of this concern, has made quackery his life work. Although some of THE JOURNAL's readers may remember what has been said about Neal in the past, it is worth while briefly summarizing this arch faker's meteoric career.

Previous to 1900, E. Virgil Neal traveled over the country under the alias X. La Motte Sage, giving alleged exhibitions of hyponotism.

In 1904 he was connected with the "Columbia Scientific Academy," which "taught" palmistry.

In 1905 Neal, with Adkin, conducted the "New York Institute of Physicians and Surgeons." This was put out of business by a fraud order issued Aug. 2, 1905.

In 1906 Neal was operating the "Force of Life Chemical Company." This fraudulent concern sold pills or tablets (made to order by Parke, Davis & Co.) and operated what



A photographic reproduction reduced of a typical advertisement put out by the New York Institute of Science. This alleged course in hypnotism was sold under the claim: "You can learn at home to cure diseases and bad habits without drugs, win the friendship and love of others, increase your income, gratify your ambitions, dispel worry and trouble from your mind, improve your memory, banish domestic unhappiness, and develop a wonderful magnetic will power that will enable you to overcome all obstacles to your success."

the New York *Times* described as a "grotesquely obvious swindle." The Force of Life Chemical Company was investigated by the federal authorities. When it was found that an influential New York politician, Gen. James R. O'Beirne, was president of it, the "investigation" ceased! The newspaper publicity, however, killed the business.

In 1906 also, Neal conducted a bank which is said to have loaned money to small publishing houses, the loans being paid in advertising space in the publications. In the same year, too, Neal started the "Neal Biscuit Company," which later changed its name to the "American Health Products Company."

Other concerns in which Neal has been either directly or indirectly interested are:

To-Kalon Mfg. Co.—A beauty treatment.
Cartilage Co.—Guaranteed to increase the height.
Harriett Meta.—Wrinkle eradicator.
Everett Wood—Cure for baldness.
Roman Solvene Laboratory—Superfluous hair remover.
Okola Laboratory—Eye treatment.
Paris Academy of Beauty Arts—Bust developer.
Dr. Turner Co.—Obesity cure

So much for the activities of E. Virgil Neal. The New York Institute of Science is said to have mulcted the public to the extent of $1,500,000. Briefly, the scheme was to adver-

* A more complete account of this case will appear in pamphlet form, price 4 cents.

tise that a free book would be sent to all those interested, explaining how "magnetic influence" and "hypnotic power" might be attained. Those answering the advertisement received a pamphlet describing the alleged "course of study" given by the New York Institute of Science. It contained a list of names of those alleged to be members of the faculty of the "institute." There was no faculty, the names given being either fictitious or those of clerks employed by this fraudulent concern. When cited to show cause why a fraud order should not be issued against it, continuances were granted at the request of the concern's attorney, John J.

Greatly reduced facsimile of the back and front covers of the "free booklet" sent out by the New York Institute of Science. In addition to many fraudulent claims, this booklet contained a list of the alleged "faculty" of the "Institute" made up largely of names of clerks employed by the concern.

Vause, and the case was not finally heard until Nov. 17 to 20, 1913. Mr. Vause, by the way, also appeared as attorney for two other frauds operated by the same syndicate, the Cartilage Company and the Okola Laboratory. But the story is well told in the memorandum of the Assistant Attorney-General to the Postmaster-General recommending the issuance of a fraud order. Part of the memorandum follows:

"The New York Institute of Science was incorporated under the laws of the state of New York, Sept. 9, 1899, by X. La Motte Sage, whose true name is E. Virgil Neal, T. F. Adkin, M. N. Adkin, M. H. Neal and B. Hurd. On Jan. 29, 1913, a statement of voluntary dissolution was filed, but prior to that date, that is on Nov. 27, 1912, Charles S. Clark, E. J. MacNamara and K. A. McCormick were incorporated under the laws of the state of Virginia to conduct this same business, under the same name, and at the same place, Rochester, N. Y.

"It is established that X. La Motte Sage, the original president of the concern, has not been connected with it since 1902, and T. F. Adkin, who, it is interesting to note, was the president of the New York Institute of Physicians and Surgeons, against which a fraud order was issued on Aug. 2, 1905, makes affidavit under date of Jan. 10, 1913, that he is not connected with the respondent company. Charles S. Clark has been connected with the business for many years as vice-president and general manager, and in the Virginia articles of incorporation he is named as president, E. J. MacNamara, vice-president, and K. A. McCormick, secretary and treasurer, these three parties being also the incorporators of the Okola Laboratory, the business of which was conducted in the same building, and against which you issued a fraud order on Feb. 16, 1914.

"Evidence in the case is to the effect that one of the publications used by the concern, bearing the title 'Vitaopathy' and written by Thomas F. Adkin, is practically the same as the course on 'Vitaology' used in connection with the business of the New York Institute of Physicians and Surgeons, of which Adkin, as stated above, was president. Other publications used are 'Magnetic Healing' by Thomas F. Adkin, 'Personal Magnetism' by Paul Weller, and a Course in Hypnotism by X. La Motte Sage. The mails were also closed against the circulation of these publications by means of the fraud order of 1905 against the New York Institute of Physicians and Surgeons. In promoting the business of the last named concern prominence was given to the course in 'Vitaology' or 'Vitaopathy,' the course in hypnotism being subordinated, whereas in the business of the New York Institute of Science prominence is given to the Sage course in hypnotism, 'Vitaopathy' being secondary."

Some of the advertisements which the New York Institute of Science issued are then described in detail, and Judge Lamar points out that the free book which the advertisement offers to the public is not a scientific treatise, as might be inferred, but merely an advertising pamphlet containing, among other things, a list of the alleged faculty of the New York Institute of Science.

Then follows the Assistant Attorney-General's description of the method by which the New York Institute of Science attempted to deceive the public by giving the impression that X. La Motte Sage was a man of high educational rank. The memorandum further states that letters from various educators at Rochester, N. Y., show that the members of the "faculty" of the New York Institute of Science were unknown to them and that the "institute" itself had never been recognized by them as an institution of learning. It then continues:

CURED PATIENTS
TESTIFY TO THE WONDERFUL HEALING POWER OF THE
ADKIN VITAOPATHIC TREATMENT
NEW YORK INSTITUTE OF SCIENCE, Rochester, N. Y., U. S. A.

Another advertising sheet sent out by The New York Institute of Science in its attempt to separate the credulous public from its money. The "institute" professed to give instruction in what it called the "Vitaopathic Treatment" of disease. This advertisement consisted of testimonials from persons alleged to have been cured by "Vitaopathy."

"Embracing two pages of the booklet under the caption 'Endorsed by Colleges and Universities,' are what purport to be facsimiles of five letters on the letter-heads of institutions of learning, speaking in complimentary terms of Dr. X. La Motte Sage, dated in the years 1889, 1897 and 1898, in none of which is mention made of the New York Insti-

tute of Science, and necessarily so, as the corporation of that name was not organized until 1899.

"Another page in the booklet is devoted to what purport to be excerpts from different newspapers dated 1896, 1897, 1898, and all of which refer personally to Dr. Sage. Beneath these clippings the statement is made:

> "We have testimonials and press clippings almost without number, all certifying to Dr. Sage's wonderful success. After the founding of the New York Institute of Science Dr. Sage ceased to give public performances and to deliver lectures, and devoted his entire time to the interests of the institution and its pupils."

"It is admitted by respondent 'that this institute has held out Dr. X. La Motte Sage as the president of same,' and in defense urges that 'this is not a material representation' and that 'the fact that whether Sage was or was not the president of the institute seems to be highly immaterial in view of the fact that the course of instruction was by correspondence.' An examination of the excerpts from the booklet set out above, however, and of the matter described in brief also appearing therein, shows that the so-called endorsements of colleges and the excerpts from newspapers relate to Dr. Sage personally, and are clearly depended on by respondent to lend an educational character to its business and to reflect credit on it, for the purpose of deceiving the unwary. Further, the representation is material in view of the pretense that 'students' can always write to Dr. Sage or any of his corps of professors and obtain their opinion on any question or difficulty.

"There is in fact no 'faculty' nor is this concern an 'Institute of Science.' It is in fact nothing but a mail-order scheme in which pamphlets and books are being sold under the false and fraudulent representations herein quoted. The persons represented as constituting the 'faculty' are in the main merely clerks and the officers of the corporation. It is significant that some of the names appearing in this alleged 'faculty' were connected with the Institute of Physicians and Surgeons against which a fraud order was issued several years ago. It also appears from the evidence that X. La Motte Sage, whose true name is E. Virgil Neal, has not been connected with this concern for a number of years and further that a number of the members of the 'faculty' became associated with the respondent years after Sage had severed his connection therewith. Regardless of this fact the company continues to represent that Sage is the president of the 'Institute' and that his personal advice is available to 'students.' While Sage and Dr. Wharton and Rev. Paul Weller are purported to have written certain of the pamphlets used by this concern in instructing its pupils, as a matter of fact they are not connected with the 'Institute' and their advice is not available to the people who buy this course of instruction.

The government officials then discussed in detail the various claims made by the New York Institute of Science. These claims were analyzed in detail and their absurdity and fraudulence shown. Particular stress was laid on the fact that the "institute" claimed to be able to make hypnotists of anybody, regardless of age, sex, education or personality, and that, in fact, it apparently, made a special bid for the illiterate. Attention also was directed to the claim made that the "course of instruction" was originally sold for $25 when, as a matter of fact, the "course" never sold for more than the $5 asked for it in the follow-up letters.

In considering the case against the New York Institute of Science, the government called in noted alienists who had investigated the subject of hypnotism and brought out the following facts: In hypnotism there are two controlling factors, the first and more important being the individuality or personality of the subject, and particularly, his willingness to be hypnotized; the second, is the individuality or personality of the operator. As one of the physicians testified: "The capacity of being hypnotized is a thing resident in the person and not a force which comes from the outside—from the operator." The whole trend of the claims made by the New York Institute of Science was exactly the opposite of this; that is, that the hypnotic power is one possessed by someone who can use it and produce results over someone else and that the New York Institute of Science could develop this alleged power in its "students." The memorandum continues:

"The purpose of the promoters in making these representations is to lead the reader of its advertising literature to believe that this concern will impart to him this wonderful power and ability to hypnotize and control anyone under any circumstances and thus to subject to his own will whomsoever he pleases, and thereby to deceive them into remitting $5 for this so-called course of instruction.

"Despite the positive and emphatic representations calculated to create the contrary impression the respondent in its brief admits that 'everyone cannot be hypnotized' and that 'it is practically impossible to hypnotize a man who is not willing to do as you say,' and the testimony of the experts introduced was also to this effect.

"NO HINGE NOR LOOP TO HANG A DOUBT ON."

WE ARE RESPONSIBLE

These letters insure our integrity and financial standing. No other institution of this character can give you such convincing testimonials; no institution of any character can submit stronger documentary evidence of its business integrity.

WHY HESITATE?

When we protect you in every way by our guarantee? These endorsements constitute indisputable evidence of our business integrity.

Five Hundred Thousand Satisfied, Successful Pupils

Living in every country in the civilized world and speaking every language, testify to the superiority of our course. We could not afford to forfeit their confidence and respect by failing to fulfill our promises.

We can impart a knowledge to you that will make you a leader of men. Master our course and lead; fail to do so and you must follow. It remains with you to decide. Your destiny is wrapped up in your decision.

NEW YORK INSTITUTE OF SCIENCE, Rochester, N. Y., U. S. A.

A reduced facsimile of a sheet, three square feet in size, sent out by the New York Institute of Science in its attempt to impress the public with its responsibility and honesty. The sheet contained reproductions of four letters. One was from the president of the Rochester *Herald*, who states that the "Institute of Science and its officers" are "of irreproachable integrity." The cashier of the Flour City National Bank, Walter B. Duffy, President, testifies that the bank's dealings with the New York Institute of Science "have always been satisfactory." The Rochester Chamber of Commerce comes to the defense of this fraudulent concern by stating that it employs 350 people, uses more than $1,000 worth of postage stamps each week and "pays its bills promptly." The fourth letter is from the postmaster of Rochester who praises the "institute"—possibly because it used over $57,000.00 worth of stamps a year—and states that he is convinced that the institute "gives its customers whatever is just and due." The New York Institute of Science commenting on the postmaster's letter says: "Do you think that a postmaster, whose business it is to investigate postal affairs and prosecute frauds, would express his satisfaction concerning our business if it were conducted on a fraudulent basis and there existed the least doubt concerning the reliability of the institute?"

"Evidence was introduced showing that in a number of instances testimonials published by the 'Institute' were solicited and procured upon promise to furnish books free.

"For years the Department has been flooded with complaints against this concern from people claiming to have

been defrauded and it is estimated that this concern has mulcted the public to the extent of $1,500,000.

"I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises in violation of Sections 3929 and 4041 of the Revised Statutes, as amended, and I therefore recommend that a fraud order be issued against the New York Institute of Science, Inc., and its officers and agents as such."

The fraud order was issued.

Correspondence

Warning as to Use of Hay-Fever Toxin

To the Editor:—Since the publication of my article on hay-fever in The Journal, July 11, 1914, p. 141, I have been receiving so many letters of inquiry that it is impossible to give each one a reply.

I tried to make clear the fact that in its present form the method is not suited for general use. What I wrote was intended only for the laboratory worker with a thorough knowledge of the principles of immunity; such men can easily prepare their own toxin and vaccines and, after some study and experimentation, should be able to use the method successfully.

All others should leave it alone. The toxin is as potent as tuberculin and requires fully as much judgment and care for its administration. I have seen some alarming reactions from it and am convinced that in some cases a dose sufficiently large would prove fatal. Any physician who, without the necessary skill and experience in such work, attempts its use is liable to acquire some very useful, but extremely painful, experience.

The pollens are not on the market so far as I know; and the toxin is too unstable to be marketed successfully. I hope you will be able to give this space in the next issue of The Journal.

R. C. Lowdermilk, M.D. Galena, Kan.

Technic for Obtaining Placental Serum

To the Editor:—I have received a large number of inquiries as to the technic in obtaining placental serum, mentioned in my paper, "Treatment of the Toxemias of Pregnancy" (The Journal, July 11, 1914, p. 158). The method is as follows: After the delivery of the child the cord is cut and the blood is allowed to flow freely from the placental end. A sterile flask collects the blood, which is then placed in a refrigerator until there is complete separation of the serum from the other elements of the blood. If the serum is perfectly clear and yellowish in color it may be used without further preparation; but if it is not, it may be centrifuged under aseptic precautions and then made perfectly clear.

A. J. Rongy, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

EFFECTS OF VESICULECTOMY

To the Editor:—1. What effect on the general health would be produced by the removal of one seminal vesicle and of both? What effect on the power of procreation would be produced by the removal of both seminal vesicles?

2. Would removal of one be indicated if chronic inflammation persisted in it for years, with many exacerbations resulting from slight causes or causes not obvious; also by ordinary methods of treatment such as stripping, hot-water rectal lavages, suppositories, etc., the exacerbations being accompanied by spasmodic condition of pylorus and resulting symptoms of headache, vomiting of intensely acid stomach contents, etc., and the disease causing many fatigue symptoms, of the neurasthenic order and therefore much discomfort to and disability of the patient?

Ira W. Chapman, M.D., Pittsburgh.

Answer.—1. As seminal vesicles are not found in carnivora, and as the experimental removal of them from other animals entails no appreciable impairment of health or procreative capacity, the presumption seems warranted that these vesicles are, in the human subject also, accessory rather than essential to general and sexual health. Yet this presumption still lacks ample clinical confirmation in man; for the extirpation of one or both vesicles is seldom performed, perhaps because it is a formidable operation, entailing about 10 per cent. mortality. Less than one hundred vesiculectomies are recorded in the literature; and most of these were made for the relief of serious diseases (for instance, tuberculosis) whose effects overshadow the mere loss of the vesicles. Yet there are cases on record in which the human subject has enjoyed normal health after the removal of one or both vesicles.

2. "Chronic inflammation" designates an anatomic condition only; this condition in the vesicles is usually due to an infection, by the gonococcus, pus bacteria or tubercle bacillus. The non-tuberculous infections have been frequently cured by drainage of the vesicle from the perineum (vesiculotomy) as practiced by Fuller, and by irrigation and medication of the vesicle through the vas deferens, devised by Belfield. An infected vesicle (non-tuberculous) should be treated by one of these safer methods before extirpation is considered.

EHRLICH'S HEMATOXYLIN STAIN

To the Editor:—In an article on "The Invariable Blood-Stain," by B. G. R. Williams (The Journal, Nov. 1, 1913, p. 1627), there was published the formula of a blood-stain under the title of "invariable." May I ask how the "three months' ripened Ehrlich's hematoxylin" is prepared. Is this a watery or an alcoholic solution? Is the solution made and then permitted to stand for three months? A detailed account of how this stain may be prepared ready for use will be greatly appreciated.

William H. Best, M.D., Brooklyn.

Answer.—The following directions are given for the preparation of Ehrlich's acid hematoxylin:

Hematoxylin crystals		2 gm.
Absolute alcohol		60 c.c.
Glycerin	60 c.c.	saturated with ammonia alum.
Water	60 c.c.	
Glacial acetic acid	3 c.c.	

The solution is to be exposed to the light for a long time until it acquires a deep-red color. If it then be kept carefully stoppered, its staining powers will remain constant for years. The acetic acid is added to prevent the formation of insoluble compounds of hematein and as a decolorizer to limit the stain to nuclei.

It is suggested that the alum, hematoxylin and water be combined and the solution allowed to ripen for two or three weeks before adding the other ingredients, which have a tendency to prevent oxidation. The fully ripened solution would then be obtained more quickly and surely. As can be readily seen, this is an aqueous solution with the addition of alcohol and of glycerin. The time of standing begins with the preparing of the solution.

HECTINE IN HAY-FEVER

To the Editor:—A patient of mine brought a clipping to me in which Hectine is recommended in the treatment of hay-fever, asking me to advise him as to the reliability of this remedy. Please give me some information regarding it.

W. H. H., South Bend, Ind.

Answer.—Hectine is a French proprietary and is stated to be, chemically, sodium benzosulphoamino-phenyl-arsenate. If the asserted composition is correct, Hectine is similar to atoxyl, which is described in New and Nonofficial Remedies, 1914, page 38. Hectine has not been examined by the Council on Pharmacy and Chemistry. Arsenic has been employed in the treatment of hay-fever with apparent success in some instances, but there is no reason to suppose that the proprietary Hectine will act better than other forms of arsenic, such as atoxyl.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

Fee-Splitting and Commission

The Nebraska State Medical Association has taken a positive stand on the question of fee-splitting and has directed its council, through a standing committee created for the purpose, to institute an investigation whenever a member is accused of this practice. The council has defined the term "fee-splitting" as follows:

"In order that there may be no misconception, . . . the Board of Councilors hereby specifies that where a patient is referred by one physician to another, neither one shall handle or transmit any part of the patient's funds which is to go to the other. Each physician must render a separate account for his services as operator, counselor, companion, anesthetist or assistant, and neither physician shall in any such case collect or transmit any part of the other's fee. Failure to observe this rule shall be considered prima-facie evidence of fraud. The board realizes that in making this interpretation of the resolution it will prevent a number of perfectly innocent transactions; but it feels that such interpretation is necessary to prevent fraud in the guise of innocence. It is not meant by this, however, to prevent a surgeon or specialist from including in his bill the accounts of his ordinary assistants, provided that they are not concerned in the reference of the case in question. Nor shall it be held to prevent any physician from collecting the fee for Roentgen ray or other laboratory work done for him by another, provided that the amount of such collections be specified in the bill."

Medical Education and State Boards of Registration

Higher Preliminary Requirements

It is reported that the Alabama State Board of Medical Examiners has passed a ruling that on and after Jan. 1, 1919, all candidates for license to practice medicine in Alabama must present credentials showing that prior to entering on the study of medicine they have completed two years of collegiate work including courses in physics, chemistry, biology and a modern language in addition to a standard high-school education. This will apply to all students matriculating for the session of 1915-16 and thereafter.

Medical Council of Canada

Dr. R. W. Powell, registrar of the Medical Council of Canada, reports that the next regular examination of that council will be held at Montreal, Oct. 13, 1914.

A candidate must either be a licensed practitioner of some province of Canada, or not being so, must present to the registrar a certificate from a provincial registrar that he has fulfilled all the requirements of a province and is therefore qualified to go up for the examination for the provincial license. The fee is $100, and papers, etc., must be deposited with the registrar, Dr. R. W. Powell, 180 Cooper Street, Ottawa, Ont., at least four weeks before the date set for the examination.

Oklahoma April Report

Dr. John W. Duke, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, April 14-16, 1914. The number of subjects examined in was 10; total number of questions asked was 100; percentage required to pass was 70. The total number of candidates examined was 15, of whom 11 passed and 4 failed. Nineteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1911) 73; (1912) 70;	(1913) 75
Northwestern University		(1903) 79
University of Illinois		(1913) 86
College of Phys. and Surgs., Baltimore		(1907) 89
American Medical College, St. Louis	(1911) 77;	(1912) 75
University Medical College, Kansas City		(1912) 89
Ohio Medical University, Columbus		(1903) 82
University of Pennsylvania		(1912) 88

FAILED

College	Year Grad.	Per Cent.
College of Phys. and Surgs., Little Rock	(1910)	48
University of Arkansas	(1912)	67
College of Medicine and Surgery, Chicago	(1903)	61
Vanderbilt University	(1893)	63

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Jenner Medical College	(1898)	S. Dakota
University of Maryland	(1901)	W. Virginia
Beaumont Hospital Medical College	(1897)	S. Dakota
Marion-Sims College of Medicine	(1899)	Texas
Missouri Medical College	(1899)	Tennessee
St. Louis College of Phys. and Surgeons	(1910)	New Mexico
St. Louis University	(1907)	W. Virginia
University Medical College, Kansas City	(1894)	Tennessee
Cornell University	(1899)	New Mexico
Knoxville Medical College	(1909)	Tennessee
Meharry Medical College	(1910)	Arkansas; (1912) Tennessee
Universities of Nashville and Tennessee	(1910)	Tennessee
University of Tennessee	(1887)	Texas; (1900-2) Indiana, W. Virginia
Southern Methodist University Med. Coll.	(1912)	Texas
Texas Christian University	(1913)	Texas
University of Dallas, Med. Dept.	(1901)	Texas

Book Notices

THE PRACTICE OF MEDICINE. A Text-Book for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By James Tyson, M.D., LL.D., and M. Howard Fussell, M.D., Professor of Applied Therapeutics in the University of Pennsylvania. Sixth Edition. Cloth. Price $5.50. Pp. 1211, with 185 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

Tyson's practice has been recognized from the first as a practical and satisfactory guide in its important field and has won for itself a high place in the esteem of the large number of physicians who have used it. The various subjects have been given careful revision, but so rapid is medical advance that even numerous new editions cannot keep pace with the latest established methods of treatment, discoveries in pathology, etc. Thus we find that even Tyson fails to mention the emetin treatment of amebic dysentery (although the ipecacuanha treatment is described). The discovery of the *Spirochaeta pallida* in the brain in paralytic dementia is also overlooked. Among the many new subjects added, pellagra is perhaps most important. In the consideration of this subject the author has had the collaboration of Dr. Edward Jenner Wood, author of a work on the disease. Dr. Spiller has also revised his own section on nervous diseases. Through the deletion of considerable unnecessary historical matter the book is no larger than in former editions, and remains a splendid work on practice.

DISEASES OF THE HEART. By John Cowan, D.Sc., M.D., F.R.F.P.S., Professor of Medicine, Anderson's College Medical School. With chapters on the Electro-Cardiograph by W. T. Ritchie, M.D., F.R.C.P., Physician, Deaconess Hospital, and the Ocular Manifestations in Arteriosclerosis, by Arthur J. Ballantyne, M.D., F.R.F.P.S., Surgeon, Eye Infirmary, Glasgow. Cloth. Price $4.00 net. Pp. 458, with 199 illustrations. Philadelphia: Lea & Febiger, 1914.

In this book there is presented in condensed, yet reasonably complete manner, the modern views of diseases of the heart. The results of the study of such disease by the polygraph, electrocardiograph, sphygmomanometer and Roentgen ray are clearly described. Bacteriologic features are included as in the discussion of acute endocarditis. Chapters are found with titles strange to text-books of a decade ago, on the myogenic theory, stimulus production, nodal rhythm, con-

ductivity, auricular flutter, auricular fibrillation, etc. The valvular lesions are well discussed, including the treatment. There is a full consideration of the various types of pericarditis. The author cites numerous instructive cases from his own personal experience to illustrate many of his points. The illustrations are largely original, and are illuminating. We were a little startled at finding the diagrammatic representation of a cardiac murmur planted squarely in the abdomen of the body figure, but learned that this is a device by which the otherwise blank space of the abdomen would be unutilized. The book is to be commended to practitioners and undergraduates.

GUIDE TO THE MICROSCOPIC EXAMINATION OF THE EYE. By Prof. R. Greeff, Director of the University Ophthalmic Clinic in the Royal Charity Hospital, Berlin, with the Cooperation of Professor Stock and Professor Wintersteiner. Translated from the Third German Edition by Hugh Walker, M.A., M.B., C.M., Ophthalmic Surgeon to the Victoria Infirmary, Glasgow. Cloth. Price $2.00 net. Pp. 86, with six illustrations. New York: Paul B. Hoeber, 1913.

This admirable work is a reprint of a number of articles published in the *Ophthalmoscope* during the past year. As there is no recent work in English that deals in their entirety with the methods employed in the microscopic examination of the ocular tissues, this work of Greeff ought to be doubly welcome. The preparation of ocular material for sectioning, including the formulas of the various hardening fluids, stains, etc., as well as the processes followed in histologic examinations, are fully described in the general part, while a second, or special part, deals with the problems that arise in examining particular tissues and organs of the ocular apparatus. The contributors to this volume have done their work well and have left little to be desired, whether one uses it as a laboratory vade-mecum, or as a book of reference in which to find, for example, an exact description of Marchi's method or the formula of Erlitzki's fluid. The pages devoted to comparative ophthalmology are an interesting phase of this work. Concurrently with an account of the methods most desirable in the investigation of human eyes (including a short account of them), parallel findings in the lower animals are discussed. These studies in comparative histology ought to be of considerable value to investigators; they are found nowhere else, so far as we know, in any English text-book. The translation is well done and is singularly free from the Teutonisms that characterize so many books derived from German literature.

THE ROAD TO A HEALTHY OLD AGE—ESSAYS LAY AND MEDICAL. By Thomas Bodley Scott. Cloth. Price, $1 net. Pp. 104. New York: Paul B. Hoeber, 1914.

It is seldom that we meet a work of medical literature that charms by its style as much as by its subject-matter and gives so much sound advice in so pleasant a manner as the book before us. The author is qualified to speak from experience, for he has gone a good part of the way himself, and if it is impossible to mark the point at which healthy old age may be said to begin, he is clear on the question of what constitute the chief pathologic features which threaten the aging man on his journey. Arteriosclerosis as the result of chronic intemperance of various sorts is the chief danger. The author preaches temperance as the crowning virtue of old age and the prophylactic against its evils. He is not content with the mere recommendation of temperate habits, but he also reviews the drug treatment of the chief symptom of hardening arteries, namely, high blood-pressure, and points out the possibility of preventing the worst consequences of previous pathologic changes. Having in the second chapter discussed the treatment of arteriosclerosis, he devotes the third chapter to the other danger of old age, the chronic infections of the respiratory tract. These are treated, it is maintained, with great success, from the most advanced point of view of vaccine therapy. The author asserts that only autogenous vaccines promise successful results. Consequently he appends an outline of the method of preparation and action of the vaccines. A more general trial of vaccines applied in this way could do no harm, for the vaccines are autogenous and hence calculated to meet an existing pathologic condition, and such experience is likely to advance our knowledge greatly along the lines of the most recent scientific research. The reader of Dr. Scott's little book is sure not only to derive the pleasure of perusing a fine essay, but also to find a number of useful hints to aid him in the treatment of both old and young. For while we emphasize the importance of arteriosclerosis and bronchial infection in old age, it is to be remembered that their prevalence is not limited by lines of age in years, but of age in physical conditions.

NUCLEIC ACIDS, THEIR CHEMICAL PROPERTIES AND PHYSIOLOGICAL CONDUCT. By Walter Jones, Ph.D., Professor of Physiological Chemistry in the Johns Hopkins Medical School. Cloth. Price $1.10. Pp. 118. New York: Longmans, Green & Co., 1914.

This new member of the series of monographs on biochemistry is in all respects up to the high standard maintained by the previous issues of this invaluable enterprise. A better authority to cover the interesting field of the nucleic acids and their products could not have been selected, for much of the best work on their physiologic conduct has come from the laboratory of Jones. This monograph should be especially interesting to physicians, for the nucleic acids, and the purins derived from them, occupy a prominent place in medical literature. Here can be found the facts concerning that much-exaggerated and overabused fetish, uric acid, stripped of the glamor furnished by futile methods and pseudoscientific enthusiasm. The time has passed when to question the dominant importance of uric acid in human disease made the heretic a fit subject for the stake. It is well that physicians now have accessible reliable information coming from the biochemists, who have not been under the spell of the uric acid diathesis and its sovereign, lithia water.

MATERIA MEDICA FOR NURSES. By A. S. Blumgarten, M.D., Instructor in Materia Medica at the German Hospital Training School for Nurses, New York. Cloth. Price, $2.50. Pp. 644. New York: The Macmillan Company, 1914.

The appearance of a work for nurses on materia medica nearly as large as the more important works on pharmacology intended for physicians may strike one as unnecessary and tending to invade the province of the physician. This is not, however, the case with the present work. The author explains that the nurse needs to be a trained observer and must know the action of medicines in order to observe accurately the effects that are obtained. The actions of medicines are therefore taught with enough of physiology as a foundation to enable the nurse to detect any untoward symptoms or the action of an overdose. Therapeutics are excluded because the nurse is never called on to treat patients, nor should she ever do so without orders from a physician. The administration of remedies receives particular attention. The treatment of poisoning is given in detail under the individual drugs. A large number of drugs are described, including, in addition to official preparations, the more prominent proprietary synthetics.

WHAT MEN LIVE BY: WORK, PLAY, LOVE, WORSHIP. By Richard C. Cabot, M.D., Assistant Professor of Medicine, Harvard University. Cloth. Price, $1.50. Pp. 336. Boston: Houghton, Mifflin Company, 1914.

These essays on practical ethics lead to a definite end, but each is sufficient in itself. References to the life of the physician crop out, but not more so than references to other topics. Each point is made through living examples, and no walk of life has been neglected. Therefore the book is adapted to being picked up at odd moments and read at random. If the author did not intend this, he should not have made the book so interesting. It is an instance of what he himself has noted: "'Any one who works hard,' says Ostwald, . . . 'will find something new.' But this 'something' is usually found, accidentally as we say, while we are looking for something else. It is in this sense that genius results from taking infinite pains. It produces something never looked for, yet something which without the infinite pains could never have come to light."

Miscellany

The Ideal Surgeon

That the ideal of surgery was at one time rather limited is shown by the alliance of the trade with the craft of the barber in the guild of barber-surgeons. The development of science has tended not only to improve the technic of the surgeon as a craftsman but also to place before him ideals from the realm of biology which involve more than the mere removal of injured or redundant parts. The surgeon has had to conquer the dangers from disease introduced by his own interference. By antiseptic and aseptic operating this has been accomplished to a great extent. At the foundation of these advances lies the knowledge of biology as shown by the microscope which, by revealing the condition of the blood, has become a great aid to operators of the present day. Thus Bland-Sutton, in the address in surgery, delivered at the eighty-second annual meeting of the British Medical Association, August, 1914, points out that the discovery of leukemia contra-indicates removal of an enlarged spleen because the extirpation of a leukemic spleen is always followed by death.

The attempt to influence the soil favorably in advance of an operation, as by the administration of hexamethylenamin before operations on the brain or spinal cord, shows the efforts of the surgeon to turn biologic or physiologic investigations to practical account. Bland-Sutton suggests that "it is probable that compounds will be discovered that can be injected into the cerebrospinal fluid and cause gliomas to shrivel in the same way that gummas disappear under potassium iodid, mercury or salvarsan, and thus abolish some of the most uncompromising operations of modern surgery."

In the treatment of malignant disease, as Sutton points out, the surgeon meets problems that arise from the infection of cancerous tissue by virulent organisms foreign to the cancer itself. In order to cure such cases, surgeons must find some way of sterilizing them or a specific remedy must be found for cancer. There are indications, he says, that both methods will be available.

Sutton sketches the character of the surgeon of the future:

"Surgeons are of two types: they are either craftsmen or biologists. The surgical craftsman invents variations in technic: metal plates, wires and screws for bones, or fancy methods of suturing wounds. Some expend their ingenuity on surgical cutlery and improve the knives and needles. The utility of a simple tool such as the clip forceps is inestimable. In spite of much ingenuity among surgeons, an ideal ligature material awaits discovery. Clever contrivances like the laryngoscope, bronchoscope and cystoscope have revolutionized special branches of surgery. Another useful instrument, the esophagoscope, requires for its successful use a surgeon with the instincts of the sword-swallower and the eye of a hawk. Recently through the kindness of my colleague, Alfred Johnson, I witnessed through the cystoscope a stone slowly extruded from the vesical orifice of the ureter.

"The biologic surgeon studies pathology in its broadest aspect and investigates, in the laboratory, problems of morbid anatomy and bacteriology. The diagnostic value of reports issued from the laboratory by the pathologist and the bacteriologist, to be of value, must be estimated with the help of clinical experience. If the surgeon has had no experience in the bacteriologic methods he must accept the reports from the laboratory with the hopefulness of a patient swallowing physic compounded from a prescription he does not understand and which he is often unable to read. The training of surgeons in clinical pathology is of great importance, and it requires little foresight to recognize that for men ambitious to attain high places in surgery the high road lies through the pathologic institute.

"Morbid histology has been and still is of great use in classification, diagnosis and prognosis of morbid growths; for a knowledge of their cause new methods are required. For those we fix our attention on the men along the skyline—bacteriologists, experimental physiologists, physiologic chemists and physicists; the future lies with them. As it is of the utmost importance that surgeons shall have a practical knowledge of clinical pathology, it becomes essential to bring the wards, operating theaters and laboratories into the closest intimacy. From this union of workers means will be found for curing diseased organs by chemiotherapy rather than by extirpating them. Until the right compound for curing cancer has been discovered, surgeons will continue to excise cancerous viscera, and this makes it more necessary to discover means for ridding cancer of pyogenic bacteria.

"The skill, ability and dexterity with which surgeons remove a kidney, the uterus, or perform extensive resection of the intestine, great and small, can be witnessed almost daily in the splendid hospitals of large cities, but surgical effort is handicapped by streptococci and the coli group, which are very resistant to chemiotherapy. There is something fascinating in submitting septic morbid growths to what Ehrlich picturesquely terms a 'bacteriologic siege.' Our difficulty is to destroy these seeds of disease without serious damage to the organs and the delicate tissues in which they flourish. The antiseptic solutions employed against bacteria are powerful cell poisons. We need therapeutic agents which destroy parasites but do not kill the tissues of the host. Acute minds are busy with these problems, and surgeons may hope to remove visceral cancer with no more risks than attend gastrojejunostomy or hysterectomy for fibroids."

Formation of Hydrochloric Acid in the Foveolae and on the Surface of the Gastric Mucous Membrane, and the Non-Acid Character of the Contents of Gland-Cells and Lumina

B. C. H. Harvey and R. R. Bensley (Biol. Bull., September, 1912, p. 225) report some striking experiments on the place of formation of hydrochloric acid in the actively secreting mammalian stomach. They show that, contrary to the generally accepted belief, free hydrochloric acid is not formed within, nor does it occur within, the gastric glands themselves. The results of their investigations "demonstrate that only non-acid substances are formed by the glands, and that the contents of the gland-cells and lumina are not acid, even when hydrochloric acid is being actively formed on the surface of the mucous membrane. . . . The contents of the parietal cells and of the lumina of the gastric glands are not acid but neutral or alkaline."

"Heidenhain, Langley and others were able to associate other secretory functions of the gastric mucous membrane very definitely with other cells. This left the parietal cells and the formation of hydrochloric acid. Further, Miss Greenwood and afterward Macallum and Miss Fitzgerald have shown that chlorids are more abundant in the parietal cells than in other parts of the gland. These facts suggest that there is some association between the formation of the hydrochloric acid and the parietal cells. . . . The parietal cells probably form substances which later furnish the chlorin of the hydrochloric acid." It will be remembered that Claude Bernard (in 1877) was forced to conclude from his classic experiments with his Prussian blue reaction that "the acid of the gastric juice is formed only after the secretion of the juice, the glands secreting a liquid which breaks up into an acid fluid and another product as yet not definitely determined." By the same method and by entirely new microchemical methods Harvey and Bensley have confirmed and extended these observations of the great French physiologist.

The most beautiful and positive results obtained by Harvey and Bensley were those in which cyanamin was used as indicator for the hydrochloric acid. This dye in the presence of hydrochloric acid forms a bichlorid with a deep blue color. In the presence of alkalies it gives a red reaction. Small pieces of fresh actively secreting stomach mucous membrane from various laboratory animals were cut out and stained in cyanamin. It was found that, with the exception of dead cells and the special cells of Heidenhain, "the dye is entirely confined to the secretion in the lumina of the glands and their various diverticula, including the whole basket-work of canaliculi in the parietal cells—all of which was intensely stained. Moreover, in no place in this system of gland tubules below the level of the gastric foveolae was the blue

color of the acid solutions of the dye obtained. On the contrary, the secretion contained in the canaliculi of the parietal cells was a distinct red like that displayed by the dye in alkaline solutions, while the secretion in the lumen of the gland was a bluish red. . . . At the level of the bottoms of the foveolae (that is, the evaginations of the surface epithelium) the color of the secretion changed rapidly to the pure blue of the acid solutions of cyanamin, and the cylindrical cells of the surface and of the foveolae stained the acid color also." These findings were confirmed by substituting neutral red as well as phenylated Nile blue for cyanamin.

In view of the fact that the secretion of the parietal cells contains a high percentage of chlorids, that the secretion "is alkaline while in these cells themselves, and that the secretion of the whole gland while contained in the gland lumen is very nearly neutral as shown by the neutral red cyanamin reactions, it seems probable that the chlorin is secreted by the parietal cells in the form of a chlorid of an organic base, and that the hydrochloric acid is only set free after this secretion is poured out of the gland into the foveolae. As to the nature of this base, there are some facts which suggest the probability that it is protein in nature."

Harvey and Bensley also demonstrated that the secretion of the gastric glands occurs in the lumen of the gland in a very concentrated form and that it is greatly diluted on reaching the surface of the gastric epithelium.

Under the head of other considerations we find that "since it is apparent that the contents of the gastric glands proper when in a state of normal activity are not acid in reaction, and may even be alkaline, it follows that the ferment of the same secretion in the gland lumen is probably not in an active form, since, as is well known, pepsin is destroyed by alkalies while pepsinogen is not affected. Hence, the failure of the secretion to attack the cells themselves requires no further explanation in the case of the gastric glands than in the case of the pancreas, since in neither case does the activated ferment come in immediate contact with the parenchyma cells. This being the case, it is pertinent to inquire whether under any conditions the secretion within the gland may become acid in reaction." In this event the secretion would be activated and autodigestion would be expected. The authors hope to report on this matter in the near future.

British Field-Service Ration

An experiment conducted by the Army Medical Advisory Board of the British military organization to determine a proper field-service ration is described in the *British Medical Journal*. In the first experiment twenty volunteers and four officers of the Royal Army Medical Corps went on practice marches during October when there was almost continuous rain. The ration consisted of fresh beef, whole meal biscuits, bread, a vegetable ration, jam, sugar, salt and tea. The energy value of the ration was 3,465 calories, which is slightly less than the standard laid down by Atwater for moderate work, 1,000 calories less than that for hard work, and 750 calories less than that supplied to convicts in England on hard labor. The health of the men was excellent throughout. During the last five days, the average loss in weight was just over ½ pound in the men and ¾ pound in the four officers. It was calculated that the men were losing 62 gm. of fat and 170 gm. of flesh during the last five days, and the conclusion was reached that the ration was too small and that at least 4,500 calories should be furnished, or even 5,000 for big men.

The second experiment also comprised twenty men under command of an officer. The ration was raised to an average of 4,511 calories by the addition of bacon and cheese. At the conclusion of the experiment the men were not hungry, and were in good condition. In the first experiment the men had been hungry and presented all the appearances of commencing starvation. The initial rise in weight was greater in the second experiment than in the first and the subsequent fall was much less. At the end the men were above their weight at the beginning. The result of the test was that the field-service ration was fixed at 3 pounds in weight and 4,500 calories.

Medicolegal

Liability of Charitable Hospital for Injury from Hot-Water Bottle

(*St. Paul's Sanitarium vs. Williamson (Tex.), 164 S. W. R. 36.*)

The Court of Civil Appeals of Texas affirms a judgment for damages for personal injuries sustained by a patient in the sanitarium from being burned on a hot-water bottle after the performance of an operation on her. The rule in Texas is that such institutions, with respect to patients within their walls or under their care, whether the patient be one on charity or one who pays, are liable for the negligence of their physicians, nurses and servants only when it appears that ordinary care has not been exercised in their selection and retention, and that, with respect to injuries inflicted on third persons and employees by the negligence of their managers, agents and servants in the conduct of the institution, they come entirely within the rule of respondeat superior, or let the superior answer. According to the testimony it was necessary and usual to place the bottle of hot water in the bed, but this was an act attended with more or less possible injury to the patient, if managed improperly. Thus it was the duty of those directing the placing of the bottle to select a person to perform the task who would be competent to anticipate injury to a patient by reason of the water being too hot. But a girl of 12 or 14 years of age was selected to perform the duty in this instance and she was not only incompetent, but wholly inexperienced. It would, therefore, seem that her selection by a member of the corporation to perform the task was alone sufficient to sustain the finding of the jury. Giving the general order, in the kitchen where the girl was employed, for some one to perform the task could hardly be said to be the exercise of ordinary care. Again, if it was customary for those in charge of the institution to assign the girl to such duties, that fact would support the finding that ordinary care was not observed in the selection and retention of the defendant's servants. Besides, the pupil nurse, who placed the patient in bed after the operation, made no examination of the bed to ascertain whether the bottle of hot water was in a safe position, notwithstanding it was shown that it was the duty of nurses to take such precaution.

Contract Not to Practice Medicine Abrogated by One of Partnership

(*Menefee vs. Rankins (Ky.), 164 S. W. R. 365.*)

The Court of Appeals of Kentucky reverses a judgment obtained by the plaintiff to recover damages and enjoin a further practice of medicine by the defendant for an alleged violation of their contract. The defendant sold certain property and his good will in the practice of medicine to the plaintiff, agreeing to remove from the town on a certain date and to locate at a point more than fifteen miles distant, and not to locate again in the town so long as the plaintiff remained in the active practice of medicine there. Later the plaintiff and the defendant formed a partnership, under a written contract, for the joint practice of their profession, to compete with another physician who was thinking of locating in the town. The partnership was to continue for three years and as much longer as it was mutually agreeable to both parties, but it was dissolved by mutual consent after about eight and a half months. After that the defendant remained in the town and continued the practice of his profession, which brought him into competition with the plaintiff, and gave rise to this suit. The Court of Appeals held the contract of partnership to be complete in itself as to the business and professional relations of the parties to each other from its date, and that it abrogated or superseded the first contract. If the partnership had continued the full three years, as contemplated by the last contract the defendant could not at that time have been compelled to comply with the terms of the first contract, as indicated. It

was therefore equally clear that an earlier dissolution of the partnership, whether brought about by mutual consent of the partners or the wrongful act of one of them, could have no different effect. The plaintiff's remedy, if he had any, was an action at law for the breach of the partnership contract, instead of an action in equity to enforce the performance of the first contract.

Continuous Confinement Within the House

(Great Eastern Casualty Co. vs. Robins (Ark.), 164 S. W. R. 750)

The Supreme Court of Arkansas says that the insured in this case was sent on account of incipient tuberculosis to a sanatorium. He was continuously under the treatment of physicians, and was confined to the house except that he was out for a short time daily under the direction of the physician, for the purpose of getting sunshine and fresh air. His policy provided for indemnity if any sickness "shall necessarily and continuously confine him within the house, where he shall be regularly visited by a licensed physician." The trial judge instructed the jury that a continuous confinement within the meaning of this provision did not mean that the insured, in order to be entitled to the indemnity, must have been actually confined within the walls of the house every minute or hour; that the mere fact that he went out occasionally and at stated intervals for the purpose of taking exercise and fresh air, under the instructions of his physician, would not be sufficient to prevent the insured from recovering such indemnity. The court is of the opinion that that correctly interpreted the contract, and affirms a judgment in favor of the insured.

County Not Liable for Cost of Operation on Prisoner

(Nolan vs. Cobb County (Ga.), 81 S. E. R. 124.)

The Supreme Court of Georgia holds that an action cannot be maintained by a physician against the county to recover the value of services rendered at the request of the sheriff, to a prisoner in his custody. It was urged that the services rendered were reasonably worth $100; that the operation could not have been postponed until the assembling of the board of commissioners, and that the board, on the presentation of the claim had ordered that the plaintiff be paid $50 for the operation. A general demurrer was properly sustained in this case. The civil code of Georgia provides that "a county is not liable to suit for any cause of action unless made so by statute." There is no law authorizing the sheriff of the county to bind the county under the facts alleged in this case. Thus the sheriff could not have made an express contract on behalf of the county for such services, nor could he have had services of the character alleged rendered on any understanding, express or implied, whereby the county would become liable on a *quantum meruit*, or for their reasonable value. Even if the action of the board of county commissioners could be considered as a recognition of the liability of the county for the services rendered, it could not render the county liable, as the liability of the county to suit depended on the law, and no action of the county commissioners taken after the services were performed could render the county liable to a suit for such services.

Itinerant Vender Law Upheld

(Baccus vs. Louisiana (U. S.), 34 Sup. Ct. R. 439.)

The Supreme Court of the United States affirms a conviction on an information which charged that the accused had, in violation of Section 12 of Act 49 of the Laws of Louisiana for 1894, illegally, as an itinerant vender or peddler, "sold drugs, ointments, nostrums and applications intended for the treatment of diseases and deformity." It was urged that the law was repugnant to the Fourteenth amendment to the Constitution of the United States (a) because it prevents a citizen from pursuing a lawful vocation; (b) it denies to other citizens rights enjoyed by all others in the state, and . . . is class legislation in its effect, as it gives to the local dealer a monopoly in the sale of such drugs, etc., and deprives the itinerant vender or dealer of the privilege of selling such articles. The court accepted the construction affixed by the court below to the statute, on which alone it could in reason have held that the acts charged were embraced by its provisions. Thus, considering the case in its true aspect, the single issue to be determined was as to the validity of the measure. A previous ruling of this court (Emert vs. Missouri, 156 U. S. 296), together with the authorities cited and the reasoning which sustained the ruling of the court in the case just stated, leaves no room for controversy on the subject. Moreover, the power which the state possessed to classify and regulate itinerant venders or peddlers, exerted in the statute under consideration, is cumulatively sustained and made, if possible, more obviously lawful by the fact that the regulation in question deals with the selling by itinerant venders or peddlers of drugs or medicinal compounds—objects plainly within the power of government to regulate.

Society Proceedings

COMING MEETINGS

Amer. Assn. of Obstetricians and Gynecologists, Buffalo, Sept. 15-17.
American Electro-Therapeutic Association, Battle Creek, Sept. 15-17.
American Roentgen Ray Society, Cleveland, Sept. 9-12.
Colorado State Medical Society, Boulder, Sept. 8-10.
Indiana State Medical Association, Lafayette, Sept. 24-25.
Kentucky State Medical Association, Newport, Sept. 23-25.
Med. Soc. of the Mo. Valley, Des Moines and Colfax, Ia., Sept. 17-19.
Michigan State Medical Society, Lansing, Sept. 11-12.
Oregon State Medical Association, Portland, Sept. 10-11.
Pennsylvania State Medical Society, Pittsburgh, Sept. 21-24.
Washington State Medical Association, North Yakima, Sept. 21-23.
Utah State Medical Association, Salt Lake City, Sept. 29-30.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

July, LXX, No. 1, pp. 1-172

1 *Retrodisplacements of Uterus following Confinement. A. Flint, Jr., New York.
2 Complete Sterilization of Skin by Iodin. J. W. Bovée, Washington, D. C.
3 *Operation for General Enteroptosis. H. N. Vineberg, New York.
4 Rupture of Uterus During Labor, Report of Spontaneous Case. J. W. Long, Greensboro, N. C.
5 Fatty Concretions in Ovarian Dermoids. J. W. McMeans, Pittsburgh.
6 Pathology and Prophylaxis of Rickets. J. E. Winters, New York.
7 Special Training in Pediatrics. J. Epstein, New York.

1. **Retrodisplacements of Uterus.**—Retroversion, which occurs much more frequently after confinement than is generally supposed, Flint claims, can often be prevented by simple routine measures. He advises that patients should be examined more frequently during the puerperium, and hospital patients should be instructed to return for an examination in about a month after their discharge. When retroversion does occur, treatment should be begun at once. The results of treatment which is begun early, while the uterus, including its ligaments, the vagina and pelvic floor are still subinvoluted, may be said to be universally good if one leaves out cases in which the retroversion is simply a recurrence of a condition existing previous to pregnancy.

The treatment and results vary somewhat according to conditions and depend largely on the time after delivery that the displacement occurs. If it should occur between the second and third week post partum, the treatment consists of hot douches, the internal administration of ergot, and the knee-chest posture exactly as has been outlined under the head of prevention. Between the end of the third week

and the end of the sixth week, in addition to these measures, tampons of glycerotannin should be used every third or fourth day. They should be put in either after first replacing the uterus or with the patient in the knee-chest position, and serve not only to hold the uterus forward but to reduce it in size. The tampons may be used without jeopardizing the end results of operations for the repair of the perineum. Before the end of the sixth week the use of a pessary is contra-indicated. After this time a pessary should be used when retroversion is present. In favorable cases the uterus will remain forward, become firm and small and the patient is cured.

Should the displacement recur and the uterus still remain larger than normal, a round elastic ring pessary will hold it up comfortably and will still permit the use of douches. In three or four weeks it should be changed to the ordinary hard-rubber retroversion pessary. The vagina and perineum by this time will have decidedly more tone, lacerations will have healed and the fitting of this form of pessary becomes a simple matter. During the time that a pessary is worn, the patient should assume the knee-chest position for five minutes twice a day. She should also take a douche once a day, attention should be given to her diet, her bowels carefully regulated and the amount of exercise or exertion she is allowed to take carefully supervised.

3. **Operation for General Enteroptosis.**—In the operation described by Vineburg a long median incision is made, extending from the umbilicus to the pubis. The patient is placed in the extreme Trendelenburg position and the intestines are packed away, as much as possible, into the upper abdominal cavity by suitable gauze pads. An assistant with flexed hand and fingers spread out holds the intestines away from Douglas' cul-de-sac. Another assistant with a gauze pad held in a long gauze-holder, pushes the body of the uterus downward in the anterior pelvic space. Douglas' cul-de-sac is thus rendered empty and is exposed fully. A fold of peritoneum is caught on either side, as far down as one can possibly succeed in getting and the two folds are sutured together by a continued suture, either of catgut or Pagenstecher thread. The formation of this first shelf is the most difficult part of the operation. The next shelf is made in the same manner, a fold of peritoneum taken on either side, about 2 inches above the first sutured. When this suture reaches the posterior wall of the cavity, it is made to catch the anterior longitudinal stria of the upper rectum, so as to close the space completely and to prevent the possibility of the sigmoid slipping in between the shelf and the rectum. A third shelf, the same distance higher up, created in the same way, usually brings one up to the level of the pelvic brim and thus Douglas' cul-de-sac is entirely obliterated.

The next step of the operation consists in suturing the round ligament to the anterior parietal peritoneum to within 1 to 2 inches of the uterine insertion. The remainder of the ligament on either side is employed for fixation sutures to the abdominal wall, in the manner described by Vineberg for retroversion. By means of these sutures the fundus of the uterus can be brought up as high above the pubis as one wishes, usually from 2 to 3 inches. When the operation is completed, the ovaries and tubes rest, naturally, on the posterior shelf, on a plane with the pelvic brim. The cecum, which in these cases is found dipping for some distance below the brim, is held up in its proper position without any sutures.

American Journal of Physiology, Boston

July, XXXIV, No. 4, pp. 353-451

8 Toxin of Rhizopus Nigricans. R. A. Gortner and A. F. Blakeslee, Boston.
9 *Experiments on Origin and Propagation of Impulse in Heart. W. J. Meek and J. A. E. Eyster, Madison.
10 Reactions of Earthworms to Hydroxyl Ions. A. T. Shohl, Boston.
11 Carbon Dioxid Production from Nerve Fiber in Hydrogen Atmosphere. S. Tashiro, Chicago, and H. S. Adams, Woods Hole.
12 Conditions Determining Rate of Conduction in Irritable Tissues and Especially in Nerve. R. S. Lillie, Worcester.
13 *Movements of Intestinal Villi. B. F. Hambleton, Nashville, Tenn.

9. **Origin and Propagation of Cardiac Impulse.**—With the aid of two string galvanometers, one comparing the upper with the lower part of the sinus node and the other comparing the sinus node with the auriculoventricular node, it has been shown that by means of vagal stimulation, cooling of the upper part of the sinus node or injection of potassium chlorid, the point of initial negativity may be made to shift from the upper to the lower part of the sinus node. This has been interpreted as showing that during these procedures the pacemaker of the dog's heart may move from the upper to the lower part of the sinus node. During the time that the seat of impulse formation resides in a lower part of the sinus node there is a lengthening of the cardiac cycle and a shortening of the *As-Vs* interval.

On the basis of work presented by Meek and Eyster and others of the series, a theory has been presented which correlates their experimental results on the automatic and vagal mechanisms of the vertebrate heart. It is believed that the specialized tissues of the heart exhibit from above downward progressively diminishing degrees of automaticity. Vagal chronotropic innervation of the specialized tissue also diminishes from above downward. The most automatic portion of the specialized tissue acts as pacemaker for the heart. The function of the chronotropic fibers is to depress this automaticity. When the automaticity of the pacemaker is reduced below that of a lower part the latter assumes dominance and becomes pacemaker. In this way the vagus, if the stimuli are properly graded, may cause the pacemaker to descend from the upper part of the sinus node in which it resides normally, to the lower part of the sinus node and finally even to the auriculoventricular node.

13. **Intestinal Villi.**—Hambleton claims that the villi possess distinct movements that are independent of peristalsis. These movements are two kinds: (1) a lashing movement, which may be supposed to aid in the mixing of the intestinal contents and thus promote the action of the digestive secretions as well as the process of absorption. This movement is not stopped by atropin. (2) An alternating retraction and extension, a form of movement which may be of special value in the act of absorption, particularly the absorption through the lacteals. This movement is abolished by both nicotin and atropin and is therefore under the control of the peripheral nervous mechanism. It is regarded by Hambleton as being probably a local reflex.

Boston Medical and Surgical Journal

July 23, CLXXI, No. 4, pp. 137-176

14 *Ulcerative Angina. Occasional Early Symptom in Typhoid. N. B. Potter, New York.
15 Problems of Private Sanatoria for Tuberculosis. F. M. Potteiger, Monrovia, Cal.
16 Development of Modern Artificial Pneumothorax. G. M. Balboni, Boston.
17 Pylorectomy for Ulcer. Report of Eight Cases. P. E. Truesdale, Fall River
18 Causes of Insanity. H. W. Wood, New Bedford.
19 Organotherapy. H. G. Jarvis, Hartford, Conn.

14. **Ulcerative Angina. Symptom in Typhoid.**—In enteric fever, Potter says, there appear not infrequently (6 to 12 per cent.) it may be before, but as a rule about the same time as the roseola, one or more small superficial ulcers, usually situated on the anterior pillars of the fauces, the so-called typhoid angina or Bouveret's ulcer. These ulcers may appear sufficiently early to be of some value in the clinical diagnosis of typhoid. An appreciation of this lesion will prevent the mistaken diagnosis of syphilis, diphtheria, croup and scarlet fever, as well as of other local lesions. Potter suggests that the ulcers are probably due to a secondary infection on a mucous membrane altered by the existing disease.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

July, VII, No. 1, pp. 1-15

20 Principles of Medical Ethics. R. Winslow, Baltimore.
21 Gastric Ulcer, Its Treatment. W. L. Rodman, Philadelphia.

Canadian Medical Association Journal, Toronto

July, IV, No. 7, pp. 565-660

22 Method of Zadig in Practice of Medicine. T. McCrae, Philadelphia.
23 Treatment of Puerperal Infections. J. R. Goodall, Montreal.
24 Diagnosis of Subtentorial Tumors. Report of Four Cases. G. W. Howland, Toronto.
25 Nickel-Chromium Wire for Bacteriologic Laboratory. H. M. Lancaster, Toronto.
26 Chloroma. W. G. Hepburn, Montreal.

Colorado Medicine, Denver

July, XI, No. 7, pp. 243-282

27 More Common Drug Eruptions and Their Bearing on Diagnosis. G. P. Lingenfelter, Denver.
28 An Unusual Case. (Trophoneurosis). H. A. Black, Pueblo.
29 Histopathology of Faucial Tonsil. T. E. Carmody, Denver.
30 Methods of Invasion of Urinary Bladder. C. E. Tennant, Denver.
31 *Experiments on Animals to Determine Influence of Ureteral Obstruction on Kidney Infections. Description of Author's Nephropexy. O. S. Fowler, Denver.
32 Normal Kidney and Ureter, Shown by Roentgenoscopy. W. M. Spitzer, Denver.

31. **Ureteral Obstruction and Nephropexy.**—Fowler rotates the kidney to an oblique position so that the lower calyx has a downhill or gravity drainage when the patient is on his feet, which is an aid to the musculature of the urinary tract. Then he makes a permanent fixation in this position by taking two strips of fascia lata from the thigh, each ½ inch wide and 10 or 11 inches long, depending on the size of the kidney and the thickness of the muscles of the back. The strips of fascia soon become fixed and make it impossible for the kidney to get away and prolapse again.

Georgia Medical Association Journal, Augusta

July, IV, No. 3, pp. 71-105

33 Medical Gospel of Twentieth Century. W. B. Hardmann, Commerce.
34 Ethics. M. A. Clark, Macon.
35 Use of Protein Milk in Diarrheal Disorders of Infancy. W. A. Mulherin, Augusta.

Medical Record, New York

July 25, LXXXVI, No. 4, pp. 141-186

36 *Problems in Genetics. T. E. Satterthwaite, New York.
37 Chronic Intestinal Stasis. S. Wendkos, Philadelphia.
38 Parenteral Nutrition and Its Surgical Application. A. C. Burnham, New York.
39 Why Yellow Fever is Endemic in Tropical and Atlantic Region. G. D. Palacios, New York.
40 Interrelation of Ex-Intern and Hospital. L. Kerr, Brooklyn.
41 Metrorrhagia. E. Schwarz, New York.
42 Diagnosis of Chronic Bronchitis. J. M. Cruice, Philadelphia.
43 *Method of Treatment for Diphtheria Carriers. H. R. Miller, New York.
44 Pedal Tic. G. F. Boehme, Jr., New York.

36. Abstracted in THE JOURNAL, July 18, p. 270.

43. **Treatment of Diphtheria Carriers.**—The method devised by Miller consists in thoroughly spraying the throat with a solution varying in strength from ¼ to 1 per cent. of the usual 40 per cent. formaldehyd solution. The patient's throat is sprayed one hour before, or two hours at least after the ingestion of food or fluid. The spray is usually used every three or four hours except during sleep. The throats were sprayed daily and cultures taken from five to eight hours after the solution had been used. When the throat becomes free from bacilli, later confirmatory cultures were made. Because formaldehyd acts better on organic material when used warm or almost hot, the solution used in the last five cases was warmed in a corked bottle before use. It was freshly prepared daily. In general Miller advises that one begin with a solution of ¼ or ½ per cent. made up from 40 per cent. formaldehyd. When necessary the solution can be increased to 1 per cent, and be applied less frequently. Three, four, five or even six days of treatment may be required, but there should be persistence in the treatment. The urine should be examined daily so as to discover any effect on the kidneys. In none of the cases which Miller has treated has there been any evidence of any renal irritation. In the series of cases observed thus far no case failed to become diphtheria-free except one which was not treated under the author's supervision.

Michigan State Medical Society Journal, Grand Rapids

July, XIII, No. 7, pp. 417-457

45 Hour-Glass Stomach and Duodenum. G. B. Eusterman, Rochester, Minn.
46 Antigens in Wassermann Reaction. R. G. Owen and H. Snure, Detroit.
47 Frontal Neuralgia. J. V. White, Detroit.
48 Rôle of Pituitary Extract in Obstetrics. C. E. Boys, Kalamazoo.
49 Louis Pasteur. C. W. Hitchcock, Detroit.
50 Roentgen Therapy in Case of Mediastinal Tumor. J. G. Van Zwaluwenburg, Ann Arbor.
51 Pituitrin in Obstetrics. Analysis of Forty Cases. W. F. Seeley, Ann Arbor.
52 Case of Lymphangioma Circumscriptum. Case of Localized Sclerodermia. U. J. Wile, Ann Arbor.
53 Two Cases of Amebic Dysentery. H. B. Schmidt, Ann Arbor.

Modern Hospital, St. Louis

July, III, No. 1, pp. 1-68

54 Where Free Patients Will Fare Well. J. H. McClelland, San Francisco.
55 Value of Convalescent Labor in Hospital Work. C. F. Sanborn, Cincinnati.
56 Seattle Children's Orthopedic Hospital. A. B. L. Stedman, Seattle, Wash.
57 Surgical Operations and Surgical Dressings at Johns Hopkins Hospital. R. B. Seem, Baltimore.
58 United States Naval Hospitals in American Samoa. E. U. Reid, U. S. Navy.
59 Board, Staff and Special Departments of Small Hospital. E. A. Greener, Muskegon, Mich.
60 Items in Hospital Efficiency. J. A. Hornsby, Chicago.
61 Operating-Room Technic in Royal Victoria Hospital. R. K. Felter, Montreal.
62 Plans and Description of $400,000 Hospital. L. B. Simpson, Kansas City.
63 Advantages of State Control over Tuberculosis Hospitals. H. L. Taylor, St. Paul.

New York Medical Journal

July 25, C, No. 4, pp. 157-204

64 Primary Perineorrhaphy by Buried and Subsurface Catgut Suture. R. L. Dickinson, New York.
65 Roentgenoscopy of Appendix. J. T. Case, Battle Creek, Mich.
66 Tubal Gestation. J. A. McGlinn, Philadelphia.
67 *Significance of High Blood-Pressure. H. Brooks, New York.
68 Pott's Paralysis. Restoration by Albee's Operation. A. J. Davidson, Philadelphia.
69 Present Status of Cataract Extraction. L. W. Crigler, New York.
70 Quantitative Estimation of Uric Acid, Cholesterin and Sugar in Blood. R. Weiss, Freiburg, Germany.
71 Protection of Public by Law. C. E. Whitney, New York.
72 Is Constipation an Evil? W. F. Waugh, Post Falls, Idaho.

67. **High Blood-Pressure.**—Brooks summarizes his opinion of the significance of high blood-pressure by saying that it is not a cause but usually a result. It is not disease, though the evidence of it. It is not pathologic, but is usually, if not always, physiologic in meaning. It tends more to prolong life than to shorten it. Where its causes cannot be removed, it is not to be treated, but maintained.

Ohio State Meedical Journal, Columbus

July, X, No. 7, pp. 391-454

73 Liver in Its Relation to Operations on Biliary Tract and Stomach. G. W. Crile, Cleveland.
74 Serum Diagnosis of Cancer. O. Berghausen, Cincinnati.
75 What Shall We Do with Our Tuberculosis Patients? C. O. Probst, Columbus.
76 Bacterins in Treatment of Ear, Nose and Throat Affections. C. L. Minor, Springfield.
77 Dentigerous Cysts. A. L. Steinfield, Toledo.

Oklahoma State Medical Association Journal, Muskogee

July, VII, No. 2, pp. 45-78

78 Rabies in Oklahoma. G. Ellison, Norman.
79 Infantile Paralysis. L. E. Andrews, Oklahoma City.
80 Treatment of Infantile Paralysis. R. L. Hull, Oklahoma City.
81 Treatment, Care and Training of Feeble-Minded Children. W. L. Kendall, Oklahoma City.

Pennsylvania Medical Journal, Athens

July, XVII, No. 10, pp. 771-850

82 Exploratory Incision as an Aid to Diagnosis. R. R. Huggins, Pittsburgh.
83 *Craniotomy. G. M. Boyd, Philadelphia.
84 *Inflammations of Female Pelvis with Special Reference to Subject of Drainage. W. H. Howell, Altoona.
85 Routine Use of Tracheobronchoscope as Diagnostic and Therapeutic Measure. R. H. Skillern, Philadelphia.
86 Gangrene of Tonsils. Report of Case. C. C. Sandels, Pittsburgh.
87 Metastatic Choroiditis. Report of Case with Streptococci in Vitreous. E. Stieren, Pittsburgh.

88 Pyuria in Infancy. T. J. Elterich, Pittsburgh.
89 Treatment of Hemorrhoids with Electrolysis. C. C. Mechling, Pittsburgh.
90 Case of Fusiform Aneurysm of Descending Aorta, with Apparent Functional Recovery after Antisyphilitic Treatment. R. M. Goepp, Philadelphia.
91 *Hospital Economy in Relation to Rubber Gloves. S. E. Tracy, Philadelphia.
92 Conservative Treatment of Hip-Joint Disease. J. K. Young, Philadelphia.
93 Thoracic Surgery. A. Armstrong, White Haven.
94 Clinical History of Case of Cervical Polyp Complicated by Pregnancy. H. Stuckert, Philadelphia.

83. **Craniotomy.**—Boyd urges that craniotomy should be performed more frequently for the dead child because by so doing a long labor will be cut short and trauma and infection prevented. Craniotomy performed by a skilful operator should have no mortality. Cesarean section has so low a mortality that in suitable cases it should be performed more frequently.

84. Abstracted in THE JOURNAL, Oct. 25, 1913, p. 1565.

91. **Hospital Economy in Relation to Rubber Gloves.**—Dry gloves are pleasant to work with, but, asks Tracy, how long do they remain dry? Most surgeons wash them off before they begin to operate. Gloves put up in a tight roll may or may not be sterile. Granting, however, that the gloves are sterile when they come from the pressure sterilizer, many of them become infected by the time the surgeon is ready to operate. After the hands have been scrubbed and disinfected, it is necessary to dry them before the gloves can be put on and this is done with a towel. While one end is being used on the hands, the other end is usually dangling against the surgeon's clothes which have been in contact with the sides of the wash basin; sprinkled with the wash water; rubbed against other things in the operating room impossible of sterilization; brushed against various people in the room and probably against visitors in street clothes and thus contaminated in many ways. Before the hands have been thoroughly dried they have been rubbed over by the infected end of the towel. Then the gloves are picked up and handled, the fingers in many instances are rubbed down by the infected hands and the gloves become infected before the operation is started.

This source of infection is eliminated by those who use wet gloves. After the hands have been scrubbed and disinfected, the gloves are filled with an antiseptic solution and slipped on. Any rubbing down on the fingers, which may be necessary, should be done with a piece of sterile gauze and in this way the gloves are handled but little. If dry gloves are injured during the operation, the powder within is smeared over the field of operation, and the wound not only gets the germs from the pores of the skin but also the germs which were rubbed on the hands from the infected towel. Not infrequently the whole end, or side of a finger will give way, and the surgeon may thus work several minutes with a finger or fingers exposed before the condition of the glove is recognized. Such a mishap is serious if the hands have not been thoroughly scrubbed and disinfected. With boiled gloves, this accident practically never happens. If the wet gloves are perforated, or torn, during the operation, any skin germs which may leak through, have been in contact with an antiseptic solution and are less likely to cause infection. After the wet gloves have been put on, if the surgeon will pull out the gauntlets and open and close the hands a few times, the excess of fluid will be expelled. It is a very simple matter to fill a sterilized jar with an antiseptic solution in which to store boiled gloves for emergency work, and gloves thus treated can be used many times. If they are to be used on dirty hands, the ones from the antiseptic solution are decidedly less likely to become infected.

Philippine Journal of Science, Manila

April, IX, No. 2, pp. 137-195

95 Sanitary Survey of San José Estate and Adjacent Properties on Mindoro Island, with Reference to Epidemiology of Malaria. W. E. Musgrave and Others, Manila.

Public Health Journal, Toronto

July, V, No. 7, pp. 439-512

96 Tuberculosis and Its Control. C. S. Mahood, Calgary.
97 Practical Application of Wassermann Test in Public Health Work. J. H. Laidlow, Ottawa.
98 How Toronto Controls Her Milk Supply. H. Lloyd, Toronto.
99 Interrelation of Physician, Citizen and State to Public Health. J. W. McIntosh, Vancouver.
100 Dawn of To-Morrow. C. G. Sutherland, Moose Jaw.
101 Alcohol, Its Place and Power. - J. Grant, Ottawa.
102 Rare Piece of Humanity. S. W. Cody, Sweaburg.
103 Chronicles En Route. Back in Japan. F. Withrow.

Surgery, Gynecology and Obstetrics, Chicago

July, XIX, No. 1, pp. 1-130

104 *Interpleural Pneumolysis. F. Torek, New York.
105 *Function of Periosteum. J. E. Moore and J. F. Corbett, Minneapolis.
106 *Experimental Study of Silk-Tendon Plastics with Particular Reference to Prevention of Postoperative Adhesions. C. W. Henze, New Haven, Conn., and L. Mayer, New York.
107 *Pathology and Treatment of Chronic Leukorrhea. A. H. Curtis, Chicago.
108 Intestinal Polyposis with Report of Case with Three Intussusceptions. J. Bratrud, Warren, Minn.
109 Pyonephrosis. C. H. Chetwood, New York.
110 *Hemorrhagic Osteomyelitis. G. Barrie, New York.
111 Prevention and Treatment of Pelvic Adhesions. P. Strassmann, Berlin.
112 Case of Arteriovenous (Varicose) Aneurysm of Deep Epigastric Artery and Vein. M. J. Seifert, Chicago.
113 Tarsalgia. W. J. Merrill, Philadelphia.
114 *Discussion of Pott's Fracture with Complications. K. Speed, Chicago.
115 Placenta Prævia and Its Treatment. W. Nagel, Berlin.
116 Operative Technic for Radical Extirpation of Vesical Neoplasms en Masse. J. B. Squier and C. G. Heyd, New York.
117 Surgery of Ileocecal Coil. F. Reder, St. Louis.
118 Evolution of Tonsil and Adenoid Operation and Description of Writer's Method of Procedure. J. C. Beck, Chicago.
119 *Use of Wire Tourniquet in Operations for Goiter. L. Freeman, Denver.
120 Two-Time Treatment of Encysted Peritoneal Abscesses. W. A. Bryan, Nashville, Tenn.
121 Autogenous Fascial Transplantation. Report of Three Cases. V. F. Marshall, Appleton, Wis.
122 Universal Extension Apparatus Applied to Surgical Bed. C. G. Swenson, Chicago.
123 Modification of Abbott's Frame for Applying Scoliosis Jackets. A. H. Freiberg, Cincinnati.
124 Sliding Splint of Plaster of Paris for Fractured Femur. J. T. Hanan, Montclair, N. J.
125 Dilatation of an Otherwise Impassable Stricture by Retrograde Passage of Filiform Guide. A. J. Underhill, Baltimore.

104. **Interpleural Pneumolysis.**—The method of operating advocated by Torek is as follows: Anesthesia is conducted by intratracheal insufflation or other methods of differential pressure to guard against the possible occurrence of respiratory accidents. An incision of ample dimension, about 6 inches, is made in the sixth or seventh intercostal space, at the posterolateral aspect of the chest, down to the pleura, and after all hemorrhage has been stopped the pleura is opened. The patient is now placed with the head low, so that if in the course of the manipulation of the lung the contents of a cavity are expressed, they may run into the mouth and not into the opposite lung. The adhesions between the two layers of pleura are then separated. This is accomplished by introducing at first only the tip of a finger to separate the adhesions in the immediate vicinity of the incision, the ribs being held apart by retractors. The separation then proceeds further and further, until finally the whole hand is introduced into the chest in order to liberate the more distant parts of the lung. In the course of this procedure bands of adhesions may be encountered that are so dense as to require division with the aid of scissors. When the separation of adhesions has been completed, the lung will collapse as much as the degree of its infiltration will permit; it is allowed to remain in this state of collapse and is not inflated before closing the thorax. The pleural cavity is closed without drainage. The two ribs which had been spread apart are brought in apposition by pericostal sutures of silk or chromicized catgut, the muscles are sutured with catgut, and the skin with silkworm-gut. Subsequent treatment is similar to that given in the ordinary pneumothorax method.

105. **Function of Periosteum.**—Moore and Corbett found that cutting the nutrient artery prevents the formation of subperiosteal bridge. As the nutrient artery supplies medullary bone, and as the periosteum is left intact when the artery is cut, they assume that the medullary bone is responsible for the subperiosteal bridge. Subperiosteal bridge may fill in gaps left in the periosteum, therefore is not absolutely dependent on that structure even as a place of refuge. Subperiosteal bridge is more marked in cases in which it receives osteoblasts from two sources than from one. Fascia is a substitute for periosteum. In heterotopic transplants, no subperiosteal bone could be produced by irritation. The authors state that the present day surgeon may be comparatively indifferent to the periosteum when operating on bone. If it is convenient he preserves it, because the conservation of tissues is always good surgery; but if it is not convenient he does not hesitate to sacrifice it, knowing that it is not an essential element in the healing of bone.

106. **Silk-Tendon Plastics.**—The experimental study of the Lange silk-tendon plastic by Heenze and Mayer indicates that the one effective method of preventing postoperative adhesions consists in a restoration of the normal anatomic relations of the transplanted tendon to its environment. This is best done by Biesalski's method of running the transplanted tendon through the sheath of the paralyzed tendon. All artificial methods of preventing adhesions by implanting living tissues or interposing foreign bodies defeat their own ends, since they exaggerate rather than inhibit the tendency to adhesions. The one possible exception is Cargile membrane. This may, for five or six weeks, help slightly to prevent dense adhesions, but the results of the author's experiments do not warrant maintaining this effect to be more than a possibility. The adhesions after the Lange operation occur not to the silk but to the end of the transplanted muscle or tendon.

The tendon itself, subsequent to the operation, shows extensive necrosis, from which, however, it recovers in from five to six weeks. During this period it should be kept at rest, and undue strain or tension on the silk strands should be avoided. The tissue enveloping the silk strand consists of a dense fibrous tissue, almost all of whose fibers and cells run parallel to the long axis of the silk; a smaller number encircle the silk. It is developed essentially from the adjacent connective tissue, though the true tendon-cells and the cells of the peritendineum and tendon-sheath also contribute to its formation. The arrangement of its fibers and the degree of its development depend on the functional demands to which it is subjected. Anatomically, it is not tendon. It must be emphasized that its development, though rapid during the first few weeks, is subsequently slow. The major share of the tension must for a long time be borne by the silk strands. Therefore, they must be of sufficient tensile strength. Therefore there is also necessity of long postoperative fixation, allowing the tendon to recover from the necrosis subsequent to the operation and insuring a firm union between the silk strands and the stump of the transplanted tendon.

107. **Pathology and Treatment of Chronic Leukorrhea.**—Curtis urges that care of the general health, free elimination, and treatment of pelvic complications which predispose to mild local infection must not be overlooked in the care of chronic leukorrhea. Curtis' bacteriologic examinations indicate that treatment of the endometrium can ordinarily be dispensed with. In unusual cases dilatation for drainage, possibly aided by topical applications, is logical treatment. Curettement of the uterine cavity, douches and tampons are probably harmful. Glands of the cervix which produce excessive mucous secretion should be excised, destroyed by cautery or otherwise rendered inactive. Purulent discharges originate, as a rule, in the lower genital tract.

Bacteria of low pathogenicity, chiefly anaerobes, evidently play an active part in their production. Autogenous vaccines decrease general malaise and backache. When aided by correction of associated pathology their influence on chronic purulent discharges is beneficial; a large number of patients are helped only so long as vaccines continue to be administered; a smaller number are permanently improved, and a fair percentage appear to be cured.

Powder treatment exerts a favorable influence but in Curtis' experience has a limited value only. Yeast seems not to have distinct advantages over other forms of powder treatment. The medicinal effects of ingredients of the powder are probably secondary to benefits from its absorptive action. Irritating discharges are absorbed by the powder, whereby the tissues are given opportunity to regain their normal resistance. If the tissues are incapable of return to normal while kept dry through use of powder, recurrence of discharge may be expected with discontinuance of treatment. Specific treatment that produces the highest percentage of successful results consists in the continued use of autogenous vaccines and dry cleansing of the vagina, together with applications of powder. Local treatments with iodin or other drugs are possible sources of help.

110. **Hemorrhagic Osteomyelitis.**—Barrie believes that the so-called medullary giant-cell sarcoma of bone is in fact a localized regenerative inflammatory lesion, without evidence of malignancy. Owing to the anatomic arrangement and structures involved, slight initial trauma is ample to account for the pathologic phenomena and progressive bone destruction that occurs, regardless of any infective process. The giant-cells found in these lesions are neither tumor-cells nor tissue builders. They act in the capacity of scavengers. A more simple terminology and classification is needed. The terms at present in use are numerous, confusing and misleading. The following classification is suggested: Hemorrhagic osteomyelitis. Traumatic. Localized. Non-infective (?). Non-suppurative. Acute. Never observed. Chronic—Type A, hemorrhagic (shows little or no metaplastic change). Type B, fibrocystic (due to later metaplasia). A. Chronic hemorrhagic osteomyelitis—Synonyms: (1) medullary giant-cell sarcoma; (2) myelogenous giant-cell sarcoma; (3) myeloma; (4) medullary giant-cell tumor (Bloodgood). B. Chronic fibrocystic osteomyelitis—Synonyms: (1) benign bone cyst; (2) osteitis fibrosa; (3) chronic osteomyelitis fibrosa—cystic or solid (Bloodgood); (4) traumatic solitary bone cysts (Felten and Stolzenberg).

114. **Pott's Fracture.**—Speed analyzed 208 cases of ankle fracture and found that Pott's fracture as classically understood is very rare. He says that each ankle fracture should be treated in accordance with the most searching diagnosis, aided if possible by skiagrams, and not by routine method. Too much faith should not be given to anteroposterior skiagrams through the ankle mortise. Lateral views should be made to show the correct position of the astragalus in the anteroposterior axis and to reveal lipping fractures. Speed would lay more emphasis on the treatment of fracture of the external malleolus with or without ligamentous damage on the inner side of the ankle by overcorrection in extreme inversion on a splint or in a cast. He advises that special attention should be paid to cases with posterior or anterior displacement of the foot, as these indicate lipping fractures of the tibia or complete separation of the external malleolus with loss of support of either anterior or posterior tibiofibular ligaments. Operation should be considered in these cases, particularly to obtain the best result. Operative measures, of simple replacement, nailing or other procedures, give perfect anatomic results in selected cases. Speed insists that the use of the foot should not be permitted until pain is not caused.

119. **Wire Tourniquet in Operations for Goiter.**—In the operation devised by Freeman the gland is dislocated in the usual manner through a collar incision. Several loops of heavy braided silk or, better, strong fishing line are then drawn through the substances of the lobe near its attachment. This may conveniently be done by plunging a small pair of blunt-pointed "alligator forceps" through the gland, grasping at its center a ligature a foot long and dragging the loop into position. Several loops are required—one near

each end and one or more in the center, according to the size of the goiter. If more convenient both ends of a loop may be threaded through the eye of a large round needle which is then passed blunt end first through the glandular tissue; or an ordinary probe with an eye at one end may similarly be used.

As soon as the loops are in place, two wires are adjusted, one on either side of the lobe, and tied tightly in place by means of the ligatures, thus forming a sort of tourniquet which compresses the base of the lobe firmly enough to control the circulation without crushing the tissues. This is easily accomplished by passing one wire through the closed ends of the loops, and on the opposite side tying the loose ends firmly over the other wire. Additional security may be obtained by again tying the loose ends of the two outer loops around the wires as they project beyond the gland and this should generally be done. If bow-knots are used they may be united and the loops tightened, if the tourniquet should prove to be too loose after amputation of the tumor, as might rarely occur in the larger and softer goiters.

The size of the wire should be about No. 17. It should be capable of being bent without bending too easily. The German silver wire employed by dentists ("orthodontia wire") answers the purpose admirably. With a pair of cutting pliers the wires may be cut to appropriate lengths during the operation, and perhaps bent to suit the requirements of special cases. As soon as the tourniquet is properly applied, which can be done very quickly, the distal portion of the gland is cut away to any desired extent without the least fear of hemorrhage. The wound is next rapidly whipped over-and-over with catgut in a round needle, so as to cover in the raw surface and prevent subsequent bleeding. The application of this hemostatic suture will be facilitated if a sufficient stump is left beyond the wires and especially if the excision is made slightly deeper in the center than at the edge. The wires are then pulled out of the loops, thus freeing the latter so that they may be picked from the tissues; or, if the wires stick, the loops may be cut.

Tennessee State Medical Association Journal, Nashville

July, VII, No. 3, pp. 99-142

126 *Brain Abscess. H. O. Reik, Baltimore.
127 Pudenal Hematocele. J. M. Clack, Rockwood.
128 Use of Local Anesthesia in Over One Thousand Major Surgical Operations. J. A. Crisler, Memphis.
129 Sarcoma of Upper End of Tibia. D. Eve, Jr., Nashville.
130 Serodiagnosis of Pregnancy. A. A. Eggstein, Nashville.
131 Runabout Baby. W. N. Lackey, Gallatin.

126. Abstracted in THE JOURNAL, May 16, p. 1582.

West Virginia Medical Journal, Wheeling

July, IX, No. 1, pp. 1-40

132 Treatment of Abortion. W. S. Gardner, Baltimore.
133 Angina Pectoris. T. A. Claytor, Washington, D. C.
134 Work of Hygienic Laboratory for Physician and Public Health. A. Arkin, Morgantown.
135 Recognition of Different Periods of Gonorrhea by Microscope. H. G. Steele, Bluefield.
136 Incidence of Cancer. J. R. Hunter, Hansford.
137 Bone Implantation in Pott's Disease. C. S. Venable, San Antonio, Tex.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal, London

June, XXXII, No. 124, pp. 97-191

1 *Secondary Infections of Pulmonary Tuberculosis and Their Treatment by Vaccines. S. H. Habershon.
2 *Mixed Infections in Pulmonary Tuberculosis; Treatment with Tuberculin. N. Bardswell.
3 Treatment of Laryngeal Tuberculosis by Tuberculin. P. Watson-Williams.
4 Autoplastic Intramedullary Bone Pegging as Method of Operative Treatment for Fractures. C. F. Walters.
5 Tachycardia in Association with Parenchymatous Goiter. F. H. Edgeworth.
6 Case of Lymphatic Leukemia in Child Aged Three Years. E. C. Williams.

1. **Pulmonary Tuberculosis.**—Habershon has found that the best results are obtained from vaccine treatment when the primary tuberculous infection is not active and the secondary symptoms of bronchial catarrh or asthma are prominent. He has personally obtained the best results in cases of secondary infection by the *Micrococcus catarrhalis*, Fraenkel's *diplococcus pneumoniae* and the Friedländer bacillus. A few of the cases have shown such marked immediate improvement, that it appears to Habershon fully to justify the vaccine treatment. A large number of cases of pulmonary tuberculosis are infected with an organism known for the present as a pneumostreptococcus, in reality a streptococcus. He has rarely obtained more than temporary relief in such cases, and the results have been disappointing.

2. **Pulmonary Tuberculosis Treated with Tuberculin.**—Cases of pulmonary tuberculosis, in which tubercle bacilli are not found in the sputum, are said by Bardswell to do equally well with or without tuberculin. In 1907 and 1908, 120 cases of this type were treated by him in the King Edward VII Sanatorium, all of the patients being discharged apparently well. What is more to the point is, that at the present time, after a lapse of from six to seven years, only 7 deaths have occurred among these patients—1 from insanity, 1 from cancer and 5 from tuberculosis. The remainder are well. It is clear to Bardswell that the treatment of these bacillus-free cases with tuberculin is uncalled for, and that in view of the good results obtained with simple hygienic measures the records of such cases treated with tuberculin can supply us with no useful information as to the value of this form of treatment.

In 1912 and 1913 Bardswell treated 200 favorable cases of early and moderately advanced disease (all of which had tubercle bacilli in the sputum) with tuberculin. The immediate results were: Arrested or much improved, 68 per cent.; stationary or worse, 16 per cent. The records for 1910 and 1911, when no tuberculin was used, show that the results of treatment of 200 similar cases were precisely the same.

As to disappearance of tubercle bacilli from the sputum: Of the 200 cases just referred to, which in 1912 and 1913 were treated in the sanatorium with tuberculin, 27 per cent. lost their bacilli before discharge; but of the 200 cases of the same type treated without tuberculin in 1910 and 1911, the percentage figure for loss of bacilli was almost identical, namely, 27.5 per cent. With rigid selection of cases, excluding all save those with a limited apical lesion associated with complete absence of constitutional symptoms, the percentage figure for loss of bacilli worked out as high as 50 per cent., both in the case of patients treated with and without tuberculin.

Bardwell's experience is that tuberculin is not a remedial agent which can be depended on to revolutionize either sanatorium results or the outlook for the average tuberculous. Tuberculin has not proved itself to be a remedy in the ordinary sense of the term, and no immediate or striking results are to be expected from it, even in the most favorable cases. Tuberculin, as employed in the sanatorium, in association with the favorable conditions which are secured by residence in the institution, exercises an influence on those cases in which steadily-increasing doses can be taken. The treatment produces (1) tolerance to considerable doses of tuberculin, and in many cases (2) an effect on the diseased structures. This local effect may be a source of danger.

As to the kind of cases in which it may be expected that tuberculin treatment is at least without unfavorable effect, Bardswell's experience is that it is the patient with a good outlook who has rapidly responded to general hygienic measures, and who has shown evidence of constitutional vigor and recuperative power. In a considerable number of cases tuberculin, so far as can be judged from immediate clinical results, has no obvious influence on the lesions. The patient is gradually made tolerant to it, but this seems to be the only objective indication of its effect. Bardwell's experience has been that the administration of tuberculin is quite unsuitable as a routine method of treatment of pulmonary tuberculosis, and that its indiscriminate and careless use on a large scale can only end in harm.

British Medical Journal, London

July, II, No. 2793, pp. 53-104

7 *Diathesis in Infancy. Plea for Its Closer Study. H. C. Cameron.
8 Carbon-Monoxid Poisoning in Senghenydd Explosion. I. J. Davies.
9 How to Increase Usefulness of British Medical Association. J. L. Stretton.
10 Recent Legislation and Medical Profession. J. Russell.
11 Tuberculous Milk in Edinburgh. A. P. Mitchell.

7. **Diathesis in Infancy.**—Cameron says that the problems of infantile dietetic disorders require for their solution all the trained faculties of medical men, and that a close supervision of the amount, composition and quality of the diet will not avail in a great number of cases to detect the cause or ensure recovery. In infantile disorders, as elsewhere in curative and preventive medicine, the help given by trained, competent and intelligent nurses and voluntary workers can only be subsidiary to the work of experienced medical men. At the present time, because of the relatively small number of medical men who are interested in the subject or who study it in a rational and broad-minded way, there is some tendency for their place to be usurped by lay workers, who are perhaps more interested but whose lack of training renders them unable to appreciate the complex nature of the problems concerned. The scientific study of the ailments of very young infants is of supreme importance to the state. Progress in the control of infant mortality is hindered not by the apathy of the public or the state, but by the comparative neglect of the profession.

Journal of Laryngology, Rhinology and Otology, London

July, XXIX, No. 7, pp. 337-392

12 Suspension Laryngoscopy and Its Practical Use. (To be continued.) G. Killian.
13 Rhinogenic and Otogenic Lesions of Third, Fourth, Fifth and Sixth Cranial Nerves. L. Onodi.

Journal of Tropical Medicine and Hygiene, London

July 1, XVII, No. 13, pp. 193-208

14 Treatment of Yaws and Their Sequelae by Means of Salvarsan. E. C. Girling.
15 Amebic Dermatitis. L. B. Keng.
16 Bronchial Spirochetosis. F. S. Harper.
17 Canine Babesiasis in Porto Rico. I. G. Martinez.

Lancet, London

July 11, II, No. 4741, pp. 75-140

18 Causes of Insanity. F. W. Mott.
19 *Treatment of Ankylostoma Anemia. H. B. Day and A. R. Ferguson.
20 Case of Cheilotomy. W. S. Handley.
21 *Common Mode of Deferred Death after Tracheotomy for Laryngeal Diphtheria (Tracheal Mucus Plug). J. Biernacki.
22 Artificial Pneumothorax: Fundamental Defects in Accepted Technic of Inducing Pneumothorax and How to Remedy Them. W. P. Morgan.

19. **Treatment of Ankylostoma Anemia.**—Extended clinical experience has demonstrated to Day and Ferguson that patients with slight anemia may benefit from hematinics without the expulsion of worms. But no case of decided anemia can be really improved unless the worms be expelled. Recent cases of moderate anemia from ankylostomiasis are cured by expulsion of the worms. Recovery in most chronic cases is very slow unless hematinics be given. Under treatment with vermicides and iron the rise in hemoglobin is a reliable index to the expulsion of the worms provided the marrow be in a condition to respond. The administration of simple forms of iron by mouth is more satisfactory than the use of organic compounds or hypodermic medication. Manganese cannot be substituted for iron.

After the expulsion of worms in a moderately severe case the recovery from anemia is better and quicker when arsenic is given as well as iron. In severe cases of ankylostomiasis the administration of arsenic is often essential to recovery. In such cases, arsenic given by the mouth may be ineffectual, but hypodermic medication generally succeeds. Arsenic by itself is useless. Iron is always essential to recovery from severe ankylostomiasis. Persistent eosinophilia after the complete expulsion of worms may be attributed to the presence of living larva in the tissues. Intense and persistent anemia in ankylostomiasis generally denotes exhaustion and atrophy of the bone-marrow.

21. **Deferred Death after Tracheotomy.**—Under present conditions, Biernacki says, it nearly always happens in cases of deferred death that severe lobular pneumonia develops. Death is usually attributed to the pneumonia, but this view requires qualification. The fact that asphyxia largely due to the plug is likely to anticipate death from the pneumonia *per se* must give weight to measures directed against its formation. These considerations indicate a line of treatment which has been well tested by Biernacki. While dry cases—those generally in which lobular pneumonia is established at the time of operation—are far more liable to tracheal plugging, the latter may take place although the patient's condition is at the outset quite satisfactory. In Biernacki's opinion it is safer to place every tracheotomy case in steam for at least a week if the tube is required for that time. Short of this, steam will, of course, be employed at the first sign of dryness. It hinders desiccation of the discharge and is beneficial when lobular pneumonia threathens or is established.

If obstruction returns after an interval and is not due to loose membrane, and at the same time the patient is not coughing up discharge freely or the discharge is very tenacious, a spray of sodium bicarbonate is prescribed (10 gr. to the ounce of water). The efficacy of this treatment depends partly on the expertness of the nurse. Using a rather coarse, intermittent spray, she compresses the ball, say, three times with the nozzle directed into the mouth of the tracheotomy tube. This she does during successive inspirations. The patient will probably then begin to cough, and the spraying fluid, mixed with more or less discharge, may be driven up to the inner end of the tube or out of it. To sop up the fluid and discharge, the nurse makes a thin swab by wrapping cotton wool round the point of sinus forceps bent to the angle of the tube. New swabs are inserted until one comes away dry. Then she repeats the whole process, perhaps three or four times. Not uncommonly the patient in the end coughs up a quantity of partly desiccated discharge, so that the formation of a slug may be delayed or possibly averted. If definite plugging occurs the sodium bicarbonate is increased to 20 gr. to the ounce.

Biernacki holds that extraction should be postponed until it is certain that spraying alone will not dissipate the plug and the obstruction has become immediately dangerous. Great care is needful in inserting the forceps; if they are opened too soon or too wide or force is used the wall of the trachea may be injured. Streaking of the discharge by blood not referable to the operation wound may reveal such injury, the result of which may be that obstruction returns earlier and proves less amenable to treatment. The forceps should be inserted no farther than is necessary to grip the plug. Extraction is discontinued in improving cases whenever this can be done without undue danger of suffocation. Some risk may have to be run. Throughout the spray may be serviceable. Oxygen when used is always passed through water. Straight from the cylinder it rapidly absorbs moisture and thus dries up discharge.

Medical Chronicle, London

July, XXVII, No. 4, pp. 221-300

23 *New Test for Morphin and Its Salts. T. H. Oliver.
24 Malignant Growths on Lupus Scars. L. Savatard.
25 Lumbar Puncture and Examination of Cerebrospinal Fluid in Meningitis in Children. C. P. Lapage.
26 Case Illustrating Rare Cause (Pleating) of Acute Intestinal Obstruction. J. P. Buckley.

23. **Test for Morphin and Its Salts.**—During an investigation of the action of catalysts on a solution of morphia in the presence of hydrogen peroxid, Oliver came across a reaction which serves as a useful test for morphin and its salts, and which is, as far as he is aware, entirely new. He describes it as follows: To a solution of morphin add a few cubic centimeters of H_2O_2 and a little strong ammonia. The solution is then stirred with a piece of copper wire, whereon the previously colorless solution becomes of a deep port-wine tint, the reaction being accompanied by a considerable evolution of gas. The test is an extremely delicate one, 0.00002

gm. of morphin being readily detected, but in looking for very small amounts it is necessary to add a few drops of potassium cyanid solution at the end of the reaction to remove any blue color formed from the copper which otherwise would mask the tint. The addition of the solution of potassium cyanid before that of the copper tends to prevent the reaction occurring.

The reaction is also a very delicate one for copper 0.00001 gm. being easily detected in solution; moreover, it will occur with any of the cuprous or cupric salts, and even the insoluble copper oxalate is markedly active. The reaction appears to be dependent on the combination of all four reagents; the copper acting as a catalyst. It will occur, however, on the substitution of monomethylamin (NH_2CH_3) for ammonia, but not with dimethylamin [$NH(CH_3)_2$], nor with caustic soda, the NH_2 group being apparently essential to the reaction.

Methyl and ethyl morphin (codein and dionin), drugs hitherto indistinguishable from morphin by ordinary tests, do not give the reaction. Apomorphin $+ NH_4OH + H_2O_2$ gives a slight pink color which, on the addition of copper, turns orange. The reaction has been tried on the following alkaloids with negative results: Strychnin, brucin, atropin, narcotin, heroin, cocain, nictoin, cephalin, emetine, veratin, physostigmin, pilocarpin and conium. Other substances were tried as substitutes for copper, viz., powdered aluminum, iron, nickel and calcium, the salts of manganese, cobalt and iron, and colloidal selenium and rhodium. In all cases, however, the results were negative. The red substances formed is insoluble in the ordinary morphia solvents and also in ether, chloroform and toluol, and the whole of the morphia is apparently changed, none of the alkaloid being precipitated from the ammoniacal solution.

Annales de Gynécologie et d'Obstétrique, Paris

June, XLI, No. 6, pp. 321-383

27 *Morphin in Puerperal Eclampsia. J. Rouvier.
28 *Pregnancy after Myomectomy; Five Cases. Goullioud.
29 The Ovary with Fibromas. (L'ovaire chez les fibromateuses.) De Jong. Commenced in No. 5.

27. **Eclampsia.**—Rouvier says that eclampsia is frequent and severe in his district, and that the secret of success in treatment is to detect the first onset of the eclampsia and by prompt measures to check it in its incipient stage, avoiding especially any errors in diet, as this is particularly liable to bring on the convulsions. It is safer, he says, to keep the patient on water alone, and then on an unsalted vegetable diet. By this means the eclampsia may be aborted even when there is already high albuminuria and high arterial pressure. He cites the details of six cases in which the patients disregarded his warning as to the diet and returned to the usual cold meats, candy and pastry, followed in a few hours by the first convulsions. In a corresponding group of six typical cases the women heeded his advice, and, although there had been up to three weeks of symptoms suggesting impending eclampsia, on the unsalted vegetable diet the blood-pressure dropped and the threatening storm blew over. Restriction to milk does not answer the purpose.

Some of the symptoms of eclampsia resemble those induced by injection of epinephrin and the action on the adrenals of some toxin may be one of the elements in the clinical picture. They may be stimulated by the toxin to overproduction or it may paralyze them more or less and also other organs. The convulsion itself does sudden and serious harm from the passive congestion in various organs during the tonic contractions, and the patient may die of asphyxia during the convulsion or may die from the disorganization that follows in its wake. For these reasons Rouvier keeps the patient under the influence of morphin when the convulsions are once installed and does not hesitate to inject large doses to arrest the convulsions: 2 c.c. at once, followed in half an hour by 1 c.c. and in another half hour by 1 c.c., thus giving 4 c.c. in the first hour. If the convulsions subside for two hours he gives an additional 0.5 c.c. two hours later; if the convulsions keep up, he continues with 0.5 c.c. every hour. The azotemic forms with myosis seem to require larger doses than others. He has records of twenty-nine cases of eclampsia thus treated: he gave up to 11 c.c. in forty-six hours in one case, and 14.5 c.c. in thirty hours in another. Reexamination later has confirmed the harmlessness of this method. The morphin reduces the congestion in the kidneys and this helps to wash out the toxins and the albuminuria subsides. Adjuvant measures are lavage of the stomach and intestine and, with pulmonary edema, dry cups to the chest and venesection plus continuous intake of oxygen by inhalation and subcutaneous injection.

28. **Pregnancy after Myomectomy.**—Among the 74 women with uterine myoma treated by myomectomy one or more pregnancies occurred later in 5 of the 26 married women under 40, that is, in 20 per cent. All the patients have been under observation for long periods after the myomectomy. Recurrence is rare and there was usually an interval of ten or more years permitting the raising of a family.

Archives des Mal. de l'App. Digestif, Paris

June, VIII, No. 6, pp. 301-360

30 *Splashing Sound and False Ascites as Signs of Ileus. (Valeur séméiologique du clapotage abdominal et de la fausse ascite pour le diagnostic de l'occlusion intestinale.) A. Mathieu.
31 Indications for Operative Treatment of Constipation. (Les altérations du colon droit et constipation caecale.) P. Duval and J. C. Roux.
32 Gastric Crises plus Herpes Zoster. Hautefeuille and Dupret.

30. **Splashing Sound as Sign of Ileus.**—Mathieu remarks that sufficient emphasis is not placed on the instructive findings of a splashing sound and pseudo-ascites just above the point in which the intestines have become obstructed from any cause. He has noticed this in a pronounced form in twelve recent cases of ileus, the obstruction developing slowly with paroxysmal exacerbations. It is sometimes hard to decide whether the trouble is from ileus or from dilatation of the stomach with pyloric stenosis; the area of dulness and roentgenoscopy will aid in differentiation.

Archives des Maladies du Cœur, etc., Paris

July, VII, No. 7, pp. 433-496

33 Anemia in Rachitic Twins. (Variété d'anémie profonde et durable, observée chez deux jumeaux rachitiques hypotrophiques.) E. Lenoble.
34 Arhythmia Originating in the Sinus with Abnormally High Blood-Pressure. (Présence d'une arythmie sinusale chez quelques hypertendus.) D. Danielopolu and J. Heitz.
35 Vasoconstricting Properties of Extravasated Blood. G. N. Stewart and T. F. Zucker (Cleveland).

Archives de Médecine des Enfants, Paris

June, XVII, No. 6, pp. 401-480

36 *Congenital Lesions of the Liver in the New-Born and in Athrepsia. H. Barbier and M. Cleret.
37 Vaccine Therapy of Vulvovaginitis in Children. J. Comby and Condat.
38 Acute Influenzal Thyroiditis in Girl of 13 with Pott's Disease. Phelip and Trèves.
39 Streptococcus Peritonitis in Small Children. H. Schyvers.
40 *Acute Enteritis and Hemiplegia in Two Infants. Carretier.
41 Pneumonia Simulating Membranous Croup. J. Comby.

36. **Congenital Lesions in the Liver.**—Barbier and Cleret report the details of eleven cases in which the liver of infants dying from athrepsia showed congenital changes enough to explain the downward trend of the children, but in these cases other organs are liable to be physically inferior likewise. The liver being at birth below par is especially sensitive, but if it is spared any extra task, it may recuperate and the child may finally grow into health if it can be tided along through the first few months. The diet should be chosen with a view to spare the liver in particular. To know how to wait, in these cases, is the beginning of wisdom.

40. **Acute Enteritis and Hemiplegia.**—Carretier reports gastro-intestinal disturbances and hemiplegia in two artificially fed infants 20 months old. They developed symptoms

of meningism and hemiplegia which subsided by the third or fourth month during which the children lived on slightly sweetened tea and whey, alternating with a vegetable broth.

Lyon Médical

July 5, XLVI, No. 27, pp. 1-56

42 Diseases of the Hands in the Rose-Gatherers of the Riviera. Revillet.

Presse Médicale, Paris

July 1, XXII, No. 52, pp. 497-504

43 Intratracheal Insufflation. T. Tuffier and G. Loewy.

July 4, No. 53, pp. 505-516

44 Technic for Operative Treatment of Abscess in the Breast. (Incision sous-et rétro-mammaire.) E. Desmarest.

45 Measurement of Pressure in Cerebrospinal Fluid. (Sous-arachnoidomanométrie.) S. Chauvet.

July 8, No. 54, pp. 517-524

46 *Pituitary Body not Responsible for Diabetes Insipidus. (Régulation de la teneur en eau de l'organisme.) J. Camus and G. Roussy.

46. **Diabetes Insipidus and the Hypophysis.**—Camus and Roussy report extensive experiments on dogs and other animals the results of which seem to show that the hypophysis is not responsible for diabetes insipidus. The seat of the mechanism regulating the water content of the organism seems to be in the region just back of the hypophysis. Injury to this region, leaving the hypophysis intact, brought on polyuria, with or without polydipsia, in all of their experiments. The experiments on record and clinical experiences apparently demonstrating the connection between disorders of the pituitary body and diabetes insipidus, they think have been misinterpreted; the inevitable concomitant superficial injury of the region just to the rear was probably the real cause of the diabetes. At least this is true of dogs, they assert; the regulating center is in the gray matter of the third ventricle, not in the pituitary body.

Berliner klinische Wochenschrift

July 6, LI, No. 27, pp. 1253-1300

47 *Pyelography and Its Importance for Surgical Work; Indications and Limitations. E. Joseph and L. Casper.

48 *Roentgen Rays and Pregnancy. H. Edelberg.

49 Histologic Variations in Chicken Sarcomas Induced by Filtrable Agents. P. Rous (New York).

50 Nothing Takes the Place of the Knife in Treatment of Cancer. (Zur Zeller'schen Pastenbehandlung.) Lange.

51 Simple Portable Device to Estimate Carbon Dioxid Tension of Expired Air. (Zur Bestimmung der Kohlensäurespannung in der Lungenluft.) L. S. Fridericia.

52 *Hysteroneurasthenia, Chronic Appendicitis or Helminthiasis? A. Rheindorf. Commenced in No. 26.

47. **Pyelography.**—Thirty-eight roentgenograms accompany this study of pyelography by Joseph, based on 100 cases. He has never had it cause colic pain except in three cases and in two it was mild and transient. In the third the pain persisted for three hours. He says that the procedure is scarcely more than a rinsing out of the kidney pelvis with collargol solution, but if the ureter is found unduly sensitive when the catheter is introduced, it is better to refrain from the method altogether. He advises a fine catheter permitting the surplus fluid to flow back outside of it.

Casper advises not to use a syringe but merely a tube and small funnel, as for lavage of the stomach. Even with the most scrupulous care, mishaps are liable, he says; he recently witnessed pains, nausea, vomiting and fever to 39.2 C. follow pyelography done with every imaginable caution, so that he warns against the use of the method when other means are instructive. Wandering kidney can be diagnosed by other means as a rule and pyelography can generally be dispensed with. It is directly contra-indicated as liable to do harm in tuberculosis of the kidney, and the findings are liable to be misleading with calculi. In five of seven cases of hypernephroma, pyelography gave negative findings, so that it was of no aid in the diagnosis. With an abnormally located kidney an opaque catheter gives just as instructive findings as injection of an opaque fluid while it is far less dangerous. A simple method of testing for impairment of function by a tumor is to test the functional capacity of each kidney separately (freezing-point, phlorizin injection and U) and compare the findings. A tumor in one is liable to reduce its functional capacity. If this fails to locate a tumor, percussion after inflation of the colon will often succeed. Pyelography on the other hand may be indispensable for the diagnosis of horse-shoe kidney and hydronephrosis, in which it clears up the clinical picture at once.

48. **Roentgen Exposure of the Ovary with Pregnancy Later.**—Edelberg reports a case of myoma of the uterus in a woman of 38, six years after her second pregnancy. She was given a course of Roentgen treatment, the ovaries being systematically exposed for a total of 125 minutes during three months, the total dosage 146 Kienböck X units, and at least 35 of the units must have been given after the unsuspected pregnancy was under way, but the pregnancy proceeded unmolested to normal term and the child seems absolutely normal and thriving to date (seventh week).

52. **Chronic Appendicitis and the Oxyuris.**—Rheindorf has found specimens of oxyuris in the apparently sound appendix and he ascribes many of the symptoms and disturbances of supposed chronic appendicitis to the presence of these helminths. In several cases they were found only when numerous sections of the appendix were examined. In one case only one oxyuris was found in a block of 100 sections. If he had commenced cutting at the other end of the block he probably would have missed it. The patient was a girl of 17 who for two years had had attacks of pain in the cecum region lasting sometimes for a day or so. She had no itching at the anus but twenty specimens of the oxyuris were found in the lumen of the appendix.

The oxuris is transparent and difficult to detect unless it is white from being full of eggs. In the case of a man teacher of 32, the appendix contained a large number of specimens and the pains kept up after removal of the appendix until the helminthiasis was cured by a vermifuge. It is probable that helminths are responsible in some cases for the persistence of pains after appendicectomy. Rheindorf has carefully examined eighty-two cases of the kind, the findings suggesting that the mere presence of the helminths sets up spastic contracture in some cases or the helminths may have a direct irritating action on the nerve terminals; in some of his sections the oxyuris was close to some of the larger nerve sections. The pains are described as dragging, boring, cutting, stabbing, prickling or a sensation of pressure, usually aggravated by movements and sometimes accompanied by nausea and vomiting. Sometimes the pain waked the patient in the night. Two brothers were operated on for chronic appendicitis and the oxyuris was found in the appendix of both. In one there were signs of inflammation and this boy had had fever the night before the operation. He found the oxyuris in 27 boys and in 13 girls with symptoms of chronic appendicitis. In adults he can count on the oxyuris in 20 or 30 per cent. of all cases and in 50 per cent. in children. That others do not find them more frequently is probably because they are overlooked. Bäärnhielm found them in 9 per cent. of the 875 cases examined in Sweden, and Sagredo in 41 per cent. at Geneva.

Deutsche medizinische Wochenschrift, Berlin

July 8, XL, No. 28, pp. 1409-1456

53 *Pulmonary Embolism Prevented by Reducing Coagulating Power of Blood. (Bau der in die Pulmonalarterie embolisierten Thromben.) H. Ribbert.

54 Dialysis Serodiagnosis. (Zur Anwendbarkeit des Abderhaldenschen Dialysierverfahrens.) E. Mosbacher and F. Port.

55 Protective Ferments against Plant Albumin. (Spezifizität der gegen Pflanzeneiweiss gerichteten proteolytischen Fermente.) B. Issatschenko.

56 *Acute Hemolytic Malaria. (Schwarzwasserfieber.) A. Plehn.

57 *Blocking the Nerves for Gynecologic Operations, etc. (Die paravertebrale Leitungsanästhesie.) P. W. Siegel.

58 Friedmann's Treatment for Tuberculosis. (Schlechte Erfahrungen bei chirurgischer Tuberkulose mit dem Friedmannschen Mittel.) E. Kahn and O. Seemann. (Erfahrungen mit dem Friedmannschen Heilmittel bei chirurgischer Tuberkulose.) R. Drachter.

59 Perforation of Tubercle into Aorta and Into Trachea. A. Girardet.
60 *Early Diagnosis of Gastric Cancer. (Zur Differentialdiagnose der Achylien mit bes. Berücksichtigung der quantitativen Eiweissbestimmung und der Fermentabscheidungen im Mageninhalt.) M. Trallero.
61 Telecardiography. (Einfache Methode, die Herzspitze für die Messung des Längsdurchmessers des Herzens sichtbar zu machen.) Huismans.
62 *Transmission of Friedmann's Virus from Guinea-Pig to Guinea-Pig with Outbreak of Tuberculosis. (Zur Virulenz des Friedmannschen Tuberkulosemittels.) K. Kaufmann.

53. **Structure of Thrombus in Pulmonary Embolism.**—Ribbert concludes from the structure of the long, loose and easily swept away thrombus which is found in the cases of fatal pulmonary embolism that changes in the composition of the blood are responsible for the development of thrombi of this special character. They must be regarded as a product of coagulation. If this view is accepted, then the next step is to reduce the coagulating property of the blood as the important factor in warding off pulmonary embolism. This form of thrombus production is certainly under our control by means to check the coagulation of fibrin.

56. **Hemolytic Malaria.**—Plehn insists that in severe cases of black-water fever, as in the case he describes, the physician must have the courage of his convictions and, aside from keeping the patient in bed, do nothing. During the critical period the patient must keep absolutely still, as this alone will enable the remaining red corpuscles to supply the tissues adequately with oxygen. If there is difficulty in breathing, or nausea, he does not hesitate to give morphin. Above all the patient must not be moved under any circumstances, and there must be no violent purging nor stimulation by baths. The unfavorable influence of chilling was particularly noticeable in the case reported. The rapid, small and sometimes empty pulse must not be mistaken for "heart weakness"; heart stimulants should be scrupulously avoided as they merely exhaust the overworked heart. At the utmost, only saline or Ringer's fluid can be permitted in intravenous injection, and he has always shrunk from this, fearing to dilute the already cell-poor blood any farther. Forced feeding had better be avoided likewise as liable to cause nausea and vomiting.

Not until the destruction of reds has ceased and the patient begun to recuperate should he be taken where he can get institutional care if need be. Under good care and nourishing food recuperation proceeds very rapidly. The attack in the case reported occurred in a Berlin hotel after return from Africa and no attempt was made to take the young man to the hospital until he had begun to improve. Then convalescence proceeded rapidly. The hemolysis occurred with intermissions several times a day, the close of each accompanied by chills and new rises of temperature, with vomiting at times but there was no tendency to anuria. The destruction of the reds proceeds inexorably so that death generally occurs the fourth or fifth day. The case he reports is one of the few cases of this type with recovery. The predominant other types are the fulminant toxic form, the hemorrhagic and the abortive hemoglobinuria forms. The clinical picture may be complicated in either type by nephritis or obstruction of the bile passages. The latter occurred in three cases in his experience but at necropsy no obstacle to the flow of bile could be discovered.

57. **Blocking the Nerves for Laparotomies, Etc.**—Siegel states that by the method of paravertebral and parasacral anesthesia he describes he succeeded in 70 per cent. of 170 gynecologic, obstetric or other abdominal operations without requiring further anesthesia. Even in the cases requiring supplementary inhalation anesthesia, the amount of the anesthetic was small. The local anesthetic in a dilute solution—0.5 per cent.—and the combination of the paravertebral and parasacral technics plus the twilight sleep are the essential features of his method. One patient died the eleventh day from sepsis after a hysterectomy; the other patients all recovered; in 120 kept under close control there was no temperature above 38 C. in 84; the pulse was constantly under 100 in 106; vomiting occurred in 5 cases; headache in 7; coughing in 15, and without cause in the lungs in 13, and 23 complained of backache; pneumonia occurred in one of the 70 laparotomy cases.

60. **Early Diagnosis of Gastric Cancer.**—Trallero gives a number of tables showing the findings with malignant disease in the stomach, nervous achylia and other affections in respect to the digestive ferments, acidity, etc. The findings show that even large albumin content and subnormal hydrochloric acid can not be accepted as sure signs of cancer. The assumption of cancer is sustained however by finding an unusually high albumin content with unusually low pepsin and rennin content, when the production of gastric juice as a whole is materially reduced. Differentiation between nervous achylia and that due to gastritis is facilitated by the striking lack of constancy in the secretion of the ferments. The rennin and pepsin may be found in normal range at one time and then very much reduced or lacking altogether. This fluctuation was never noticed in the cases with an organic basis. The findings recorded in the tables are the more instructive as they are compared with those from fifty normal persons.

62. **Transmission of Tuberculosis from Guinea-Pig to Guinea-Pig after Injection of Friedmann's Remedy for Tuberculosis.**—Kaufmann reports that he inoculated a guinea-pig last February with the contents of an ampule of Friedmann's remedy. The animal died the twentieth day with signs of microscopically certain tuberculosis. Another guinea-pig was inoculated with an emulsion of the spleen from the first animal, and when killed the thirty-sixth day severe tuberculous processes were found in the peritoneum, liver, spleen, lung and glands. Three other guinea-pigs also inoculated at the same time died of severe tuberculosis. These findings confirm that the Friedmann virus is transmissible to warm-blooded animals and that under certain circumstances it may become extremely pathogenic.

Jahrbuch für Kinderheilkunde, Berlin

June, LXXIX, No. 6, pp. 645-762

63 The Effect of Whey on the Epithelium, etc., of the Intestines. I-V. (Einfluss der Molke auf das Darmepithel.) E. Moro. (Artspezifität der Molkenwirkung auf Darmzellen.) H. Hahn, Hayashi, L. Klocman, E. Freudenberg and G. Schofman.
64 Spasmophilia. E. Freudenberg and L. Klocman.
65 The Blood in Melena Neonatorum. E. Lövegren.

Medizinische Klinik, Berlin

July 12, X, No. 28, pp. 1171-1212

66 *Uterine Hemorrhage in Girls. G. Schickele.
67 *Deforming Juvenile Osteochondritis. Brandes.
68 *Diagnostic Importance of Tuberculin Reaction in Focus in Obscure Hip-Joint Disease. (Tuberkulinherdreaktion bei unklaren Hüftgelenkserkrankungen.) W. Keppler and F. Erkes.
69 Adipositas Dolorosa. (Fall Dercumscher Krankheit.) L. R. v. Korczynski.
70 *Excessive Vascular Tonus and Contracted Kidney. (Zur Lehre von der vasculären Hypertonie.) E. Münzer and A. Selig.
71 Climate of German Seashore Resorts. (Ost- und Nordseeklima.) Ide.
72 Physical and Chemical Therapeutic Measures and the Distribution of the Blood. C. Hertzell.

66. **Causal Treatment of Uterine Hemorrhage in Girls.**—Schickele remarks that nearly all cases of abnormal uterine hemorrhage in the young can be traced to some constitutional or general affection, inadequate or excessive nourishment, or primary or secondary irritability of the vasomotor system, or to some local cause, disturbance in functioning of the ovaries or other glands, inability of the normal or defectively developed uterus to contract properly, or the vasomotor apparatus of the uterus may be unduly irritable, or there may be secondary hyperemia in the uterus, or some upset in the local metabolism, that is, in the production of the substances in the uterus which dilate the blood-vessels and check coagulation. These substances may be produced to excess at the onset of puberty and possibly keep the uterus irritated and thus maintain the hemorrhages.

Treatment of excessive hemorrhage in girls should be based on which of the above factors are operative. With

defective secretion in the ovaries or other glands, a change of climate or of occupation may aid in restoring normal conditions; others improve under a diet rich in salts, with large doses of sodium bicarbonate. With a defectively developed uterus, ergot may improve its contracting power and ovarian therapy may start the uterus to grow. When the uterus is normal but seems unable to contract properly, hypophysis extract with or without ergot may prove useful, as also with simple hypoplasia. When vasomotor causes are responsible, a vegetable diet, calcium salts, hydrotherapy and possibly psychotherapy render good service. When general or constitutional causes are at work, appropriate treatment should be applied, but local measures should be avoided to the utmost. If more vigorous measures are unavoidable, the uterus may be tamponed or the curet may be required in very exceptional cases.

67. **Deforming Osteochondritis in the Young.**—Brandes encountered last year ten children presenting the clinical picture of a hip-joint trouble permitting the patient to flex the hip-joint freely while abduction is almost impossible. The roentgenoscopic findings at first are insignificant but later they are more serious than would be suspected from the clinical picture. The syndrome is further distinguished by the protracted course and the gradual subsidence of all subjective symptoms and of nearly all the objective findings. The process hitherto classed as tuberculosis of the neck of the femur probably belongs in this category, as also many cases of supposed tuberculous hip-joint disease, published as having been cured by this or that treatment. He advocates and has constantly applied a plaster dressing to spare the joint, applying it with the leg abducted to the utmost under general anesthesia. After two or three months this is changed for a walking stirrup, and the plaster dressing is cut shorter and shorter. Massage and superheated air complete the cure. (See abstr. 174, May 2, 1914, p. 1444.)

68. **Focal Reaction in Hip.**—This article was summarized July 11, page 203, as it appeared elsewhere.

70. **Excessive Vascular Tonus.**—Münzer and Selig report a few cases which sustain their contention that contracted kidney is merely one manifestation of the results of thickening of the walls in the precapillary arterial system. It may finally obstruct the lumen completely in the finest of these vessels, augmenting the blood-pressure and entailing hypertrophy of the heart. The term "contracted kidney" should be discarded for "vascular hypertony of the kidney" as the former is based on a mistaken conception of the cause.

Monatsschrift für Geb. und Gynäk., Berlin

July, XL, No. 1, pp. 1-186

73 Effect of Hypophysis Extract on Uterine Contractions in Labor. (Wirkung des Pituitrins auf die Uteruskontraktionen unter der Geburt.) M. Malinowsky.
74 Treatment of Extra-Uterine Pregnancy Rupturing During the Early Months. J. Olow. To be concluded in No. 2.
75 Chorio-Angioma. O. Nebesky.
76 Quadruplets from Four Ova with a Discussion of Quadruplet Births in General. E. Brattström.
77 Primary Carcinoma of Bartholin's Gland. J. Fabricius.

Münchener medizinische Wochenschrift, Berlin

July 7, LXI, No. 27, pp. 1489-1544

78 New Experiments on the Reactions of Plants and Animals to Light. (Lichtreaktionen bei Tieren und Pflanzen.) C. Hess.
79 Roentgenoscopy of the Appendix. H. Rieder.
80 Experimental Analysis of Kidney Functioning. (Funktion der Niere.) E. Leschke.
81 Increased Acid Content of Blood in Uremia. (Azidose des Blutes bei Urämie.) H. Straub.
82 *The Proteolytic Index in Serodiagnosis. (Ueber Abbau von Kasein durch Blutserum.) L. Flatow.
83 No Practical Value to the Skin and Conjunctival Tests for Pregnancy. D. A. de Jong.
84 Color Test with Dialysis Serodiagnosis. (Kolorimetrische Bestimmungsmethode der mit Triketohydrindenhydrat reagierenden Verbindungen.) E. Herzfeld.
85 Regeneration of the Cornea. (Abstammung der Keratoblasten bei der Regeneration der Hornhaut.) Salzer.
86 *Very Small Salvarsan Doses in Treatment of Secondary Anemia and Nutritional Disturbances. K. Kall.
87 Albumin Milk a Great Progress. (Erfahrungen mit Eiweissmilch.) A. Lichtenstein.

82. **Abderhalden's Dialysis Test Applied with Casein.**—Flatow remarks that the use of a standard solution of casein for the Abderhalden test does away with all possibility of error from traces of blood in the organ extract, and permits calculation of a proteolytic index for estimating and recording the protective ferments in a given serum. He remarks that time has confirmed his views as to the non-specific nature of these ferments. It is only a question of the degree of the digestion. He has applied various tests in twenty cases and found the results concordant in all with the casein solution. The standard casein solution is made by soaking 1 gm. casein in 3.5 c.c. decinormal sodium bicarbonate solution until it has softened and then 16.5 c.c. water is added and toluol to keep it sterile. The "proteolytic index" is the increase in the percentage of nitrogen in the dialysate of the serum plus casein solution, compared with the dialysate of the "serum alone," after dialyzing for fifteen hours. The quantities used are 1.5 c.c. serum in each tube and 0.2 c.c. of the casein solution with 20 c.c. of water to dialyze into. The nitrogen content of the dialysate is determined by Pregl's "microkjeldahl" method. In 5 pregnant women the increase was from 46 to 90 per cent. while in five controls, including one or two men, the increase was from 32.5 to 48 per cent.

86. **Very Small Doses of Salvarsan in Treatment of Secondary Anemia and Nutritional Disturbances.**—Kall has treated fifty-five patients of this kind with minute doses of salvarsan, never over 0.05 or 0.075 gm., as a simple and harmless method of giving arsenic and found it extremely effectual in increasing the weight, and it improved the blood-picture and subjective symptoms in all forms of secondary anemia and mild tuberculosis. He gives from ten to fifteen injections and repeats the course after an interval of a few weeks.

Therapie der Gegenwart, Berlin

July, LV, No. 7, pp. 289-336

88 *Prognosis with Arteriosclerosis of the Heart. G. Klemperer.
89 Treatment of Diabetes Mellitus. Forster.
90 Isolated Primary Tuberculous Focus in Fascia of Upper Arm. W. Pohl.
91 *Dislocation of Peroneus Tendon. Muskat.
92 Consensus of Opinion on Friedmann's Treatment of Tuberculosis. (Klinische Erfahrungen über das Friedmannsche Tuberkulosemittel.) F. Klemperer.
93 *Radiotherapy in Blood Diseases. (Strahlentherapie der Blutkrankheiten.) H. Hirschfeld.

88. **Prognosis in Heart Disease.**—Klemperer remarks in the course of this postgraduate lecture that the tortuous course of the temporal arteries has absolutely no prognostic import, and that the blood-pressure at the wrist may vary under emotional impulses and thus have no bearing on the prognosis. He adds that almost the same can be said of intermittent claudication; he has patients with this for seven years without evidence of progression of any cardiovascular trouble, and several who have thrown off completely the tendency to intermittent limping. Even gangrene of the toes does not shorten life as it may heal with or without an operation. Cerebral complications are more dangerous, but small hemorrhages may be reabsorbed; he has several patients still living ten to twelve years after their first "stroke." Tinnitus may prove very persisting; he has a patient now 91 who has had tinnitus constantly since the age of 64. Large doses of sodium iodid, not less than 2 or 3 gm. a day, kept up for six or eight weeks, have arrested syphilitic aortitis almost invariably in his experience when treatment was applied in an early stage. Mercurial inunctions might be used instead of the iodid. Moderation in all things, repose and an equable philosophic view of life are essential elements in the prognosis just as the restless ambition spurring to constant efforts, may often be regarded as one and the main cause of the arteriosclerosis.

91. **Habitual Dislocation of Peroneus Tendon.**—Muskat reports dislocation of the peroneal tendons accompanying flat-foot. Both feet were affected, and he restored conditions to approximately normal without an operation, cast or plaster bandage. An insole and inheel kept the foot in extreme supination. A stout elastic band inside the shoe, correspond-

ing to the course of the fibula prevented the tendon from slipping past the malleolus. During the night a leather gaiter was worn which held the leg and foot in extreme supination and had an irritating action on the periosteum, stimulating it to throw up a protecting barrier. The parts were all stimulated with massage, electricity, etc., and a complete cure was thus realized. The patient has had no recurrence of the trouble, not even in mountain climbing. Muskat compares with this some published operative cases and urges others to report their experiences to decide the question as to the superiority of operative or non-operative measures.

93. **Radiotherapy in Blood-Diseases.**—Hirschfeld has had a number of favorable experiences with Roentgen exposures of the enlarged spleen in myeloid leukemia. The magic effect may be realized in a few weeks, the huge spleen subsiding to its normal size and sometimes without any symptoms; in other cases there may be pains probably from adhesions. The general health improves remarkably and leukemic retinitis, priapism, deafness or vertigo may subside entirely. This favorable outcome was realized in 20 or 30 per cent. of his cases, and generally in the cases of shorter duration. But some improvement under the radiotherapy is evident in nearly every case. Lymphatic leukemia is less easily influenced but even in this he has had better success in some instances than with any other treatment. He has sometimes found radium succeed when Roentgen treatment had failed. In one case, under ten radium exposures the whites dropped from 500,000 to 12,500 and the spleen, which had filled half the abdominal cavity, subsided until it could scarcely be palpated under the costal arch. The formerly bed-ridden patient feels almost entirely well and takes long walks. The trouble in this case was a recurrence. A lymphogranuloma, rebellious to the Roentgen rays, promptly subsided under mesothorium in one case. In pernicious anemia remarkable results were sometimes obtained under small, merely stimulating doses of thorium X, but as a rule it proved less effectual than arsenic. The outlook with acute leukemia is less promising. He states that he does not know of an instance in which the slightest benefit from roentgenotherapy was evident in acute leukemia.

Wiener klinische Wochenschrift, Vienna

July 9, XXVII, No. 28, pp. 1013-1052

94 *The Clinical Importance of Blood-Dust. (Die klinische Verwertbarkeit der Hämokonien.) O. Weltmann.
95 *Nature and Treatment of True Epilepsy. G. C. Bolten.
96 *Vagotony. H. Neugebauer.
97 Roentgenoscopy of the Stomach. (Tastsonde für die Röntgenuntersuchung des Magens.) G. Kelling.
98 Gaseous Phlegmons. W. Goldschmidt.
99 Industrial Diseases in Hungary. (Gewerbe-Pathologisches aus Ungarn.) H. Pach.

94. **Blood-Dust in Diagnosis of Liver Disease.**—Weltmann here reports from the third university medical clinic at Vienna, in charge of Chvostek, 105 cases of various affections in which the test for blood-dust or hemoconiae in the blood was applied (as described in The Journal, June 6, 1914, p. 1848). He tabulates the findings the fourteenth, second and third and fourth hours after the butter test meal (50 gm. of butter on bread). Classifying them according to the proportionate content in blood-dust, shows that the cases with little or no blood-dust after ingestion of butter, were all cases of liver disease. A delay in the appearance of blood-dust in the serum after the butter test meal indicates disturbance in the functioning of the liver. Complete absence of blood dust or very small proportions seems to be a sign of more or less complete obstruction of the biliary passages; it is as significant in this respect, he states, as clay-colored stools.

95. **Epilepsy.**—Bolten has devoted ten years more or less to the study of true epilepsy, that is, excluding all forms of epilepsy for which some cause was apparent. His research has established, he thinks, that essential epilepsy is the result of auto-intoxication from lack of the normal ferment processes in the intestines and disturbance in the intermediate metabolism from lack of normal functioning in the thyroid and parathyroid bodies. By supplying the active principle of these glands in juice squeezed out of the glands, it is possible, he declares, to arrest completely all the manifestations of true epilepsy, as he has succeeded in doing in a whole series of cases. The production of the proper ferments is stimulated by the treatment, metabolism is corrected into normal paths, and the epilepsy is clinically cured. He reviews the literature and compares various data, with other arguments to sustain his contention, and points to his cured cases as the final proof although he gives no details as to the actual cases he has treated in his practice at The Hague.

96. **Vagotony.**—Spitzig's article on vagotony in The Journal, Jan. 31, 1914, p. 364, describes the main features of this condition of overstimulation of the autonomic system, but Neugebauer here adds other clinical pictures of this state and reports effectual treatment. He states that patients with this hypertonicity of the vagal tract are generally comparatively young, of weakly constitution, with signs of status hypoplasticus. The stools generally consist of hard lumps in diarrheic soft feces. The sexes are about equally involved. There is flushing of the face, general or in patches. Dermographism may be so pronounced that words written on the back are plainly perceptible for half an hour. The bradycardia fluctuates with position; it may be 48 reclining and run up to 100 on rising, gradually settling down to 60 or 72, as in a soldier recently in his care. Pressure on the eyeball may slow the pulse to 36 or less, and in several young soldiers the radial pulse stopped completely and no heart-beat was audible for ten or twelve seconds; by the sixth second the man dropped unconscious. Relieving the eyeball from pressure, the heart-beat started up again, with profuse perspiration, but the bradycardia persisted afterward for some time. During the syncope and afterward, respiration was rapid and shallow. In two cases there was no syncope but extreme nausea and vomiting in one. The fact that the above symptoms are due to the abnormally low nervous threshold in the vagus system is proved by their subsidence under atropin. A systematic course of atropin trains the vagus out of its morbid overexcitability and approximately normal conditions may be permanently restored as in a case he describes at length in which by exclusion the trouble was differentiated as vagotonic cardiospasm.

Similar permanent benefit is also derived in vagotonic dysmenorrhea. Menstruation occurs usually at three-week intervals, accompanied by severe pains in the pelvis and sacral region. In a typical case reported a woman of 28 was confined to bed for five or six days at each menstruation by the pains and excessive menstrual flow. The pulse was 108 and the large intestine was hard and tender nearly throughout; the eyeball and forced inspiration tests were positive. She was given atropin, 0.5 mg. a day, in the form of a suppository, the first week; then 1 mg. the second and third week, and 2 mg. during the fourth week, then gradually decreasing at the same rate. The appetite improved, the intermenstrual period was four weeks, and the menstrual period lasted only three days, during which the patient was free from all disturbances.

Zeitschrift für klinische Medizin, Berlin

LXXX, Nos. 3-4, pp. 27-380. Last indexed July 4, p. 70

100 Congenital Heart Defects. L. Dünner.
101 *Serum of Thyroidectomized Goats in Exophthalmic Goiter. (Uebt das Antithyroidin eine spez. Wirkung gegenüber dem Morbus Basedowii aus?) C. Sonne.
102 Electrocardiographic Record over Long Periods. Karfunkel.
103 Neurofibromatosis. W. Lier.
104 Symptoms of Exophthalmic Goiter Occurring with Acute Infectious Thyroiditis. D. D. Pletnew.
105 Influence of Immoderate Smoking on the Heart and Vessels. (Einfluss des Nikotins auf die Gefässe und das Herz.) J. Pawinski.
106 *Estimation of the Functional Capacity of the Pancreas. A. Landau. and A. Rzasnicki.
107 Hematology of Small-Pox and Vaccinia. M. Schatzmann.
108 Left Auricular Flutter. (Ueber isolierte Vorhofstachysystolie—linkseitiges Vorhofsflattern.) O. Roth.
109 Granular Form of Tuberculosis Virus. G. Brückner.
110 Albumin Content of Sputum. G. Brückner.
111 Leukemic Lymphomatosis with Paroxysmal Hemoglobinuria. G. Gali.

101. **Antithyroidin in Basedow's Disease.**—Sonne reports his experience with 80 cases of exophthalmic goiter in which he administered, more or less systematically, tablets made from the blood or serum of thyroidectomized goats. The results observed, he says, suggest that any benefit derived can probably be explained by suggestion. The thyroids were removed from 87 goats for the purpose and 35 developed myxedema and lived only about fourteen months on an average. No difference in the therapeutic action of the antithyroidin from these goats was apparent in the extensive clinical tests. The details of 23 clinical cases are tabulated in which courses of each were given; that is, antithyroidin from the operated normal and from the operated myxedematous goats or horses. Improvement was noticed after each in some cases, and aggravation after each in others.

106. **Estimation of Pancreas Functioning from Regurgitation of Duodenal Contents into the Stomach.**—Landau and Rzasnicki have examined the stomach content for pancreas ferments after a test-breakfast in sixty-eight cases and found considerable amounts of trypsin in 55 per cent. of the cases. It was thus possible with the ordinary stomach tube to determine that the pancreas was secreting adequate amounts of its juice. Negative findings are not conclusive as to pancreas functioning. The duodenal tube may bring up trypsin when none can be found in the stomach, and this test should be applied in all dubious cases. The secretion of trypsin, diastase and lipase does not proceed regularly for each, and consequently each must be determined separately to obtain a correct oversight of how the pancreas is working. The findings are tabulated, the cases classified according to the affection in each. The list includes 10 with cancer and one with a fistula into the pancreas. In a second communication they present clinical evidence which shows beyond question that the diastase in the saliva and that in the pancreatic juice respond exactly alike to chemical tests. Hence examination of stomach content for regurgitated pancreatic diastase is absolutely futile, owing to the presence of saliva in the stomach content.

Zentralblatt für Chirurgie, Leipsic

July 11, XLI, No. 28, pp. 1177-1208

112 *Direct Access to Upper Esophagus. (Zur Freilegung des Brustabschnittes der Speiseröhre.) L. Dreyer.
113 Plastic Operation on Dog's Aorta. (Das endgültige Resultat einer Aortenplastik aus der Carotis desselben Tieres.) E. Jeger, H. Joseph and F. Schober.
114 *Occult Blood in the Feces. A. Wagner.

112. **Access to the Upper Esophagus.**—Dreyer has been making a study of the best means of direct access for operations on the upper esophagus, and states that nine-tenths of the diameter of the esophagus is more accessible from the right than from the left. In two cases of exploratory thoracotomy recently he found that the descending aorta hid the esophagus on the left while it lay exposed on the right side. The only large vessel that crosses the gullet on the right is the azygos vein which is easily separated from it. The ribs have to be resected for quite a stretch, of course, and to avoid mechanical disturbances afterward he bridged the gap on each rib with a plate of aluminum. This restored the wall to all effects and purposes and aided materially in the smooth recovery in his two cases; unfortunately in both the cancer was found inoperable, so the thoracotomy was merely exploratory.

114. **Dry Test for Occult Blood in Stools.**—Wagner has simplified the benzidin test so that it can be applied without an ether extract and thus much more conveniently, as all that is necessary is to take up a little of the solid stool on a match, smear it on an object glass and pour the reagent over it. It turns blue if there is blood present and there is no misleading green tint from fluid. The reagent is the usual Schlesinger-Holst mixture: A knife-tip of benzidin; 2 c.c. of glacial acetic acid, and 20 drops of a 3 per cent. solution of hydrogen dioxid. By this dry technic there is no danger of soiling the fingers, and the test is more sensitive than the usual "wet" benzidin test. The smear of stool is either blue or it is not. The rapidity of the color change gives some idea as to the proportion of blood in the stools; with much present the change to blue is instantaneous.

Zentralblatt für Gynäkologie, Leipsic

July 11, XXXVIII, No. 28, pp. 985-1016

115 *Improved Technic for Ovariectomy. H. Freund.
116 *Chorea during Pregnancy. W. Kolde.
117 *Differentiation of Maternal and Fetal Blood Stains. P. Perazzi.

115. **Improved Technic for Conservative Ovarian Operations.**—Freund has been applying for over three years a method of conservative resection of benign ovarian cysts and other tumors which permits retention of a certain amount of ovarian functioning and thus the women were spared all symptoms of the artificial menopause. Although none of his patients has passed through a pregnancy since, yet he thinks that conception may occur after this method of operating. He slits the tumor its entire length by a median incision and thus is able to inspect the ovary completely and detect any scraps of normal tissue still left. If no scraps are found then the operation has to be a complete ovariectomy, but as a rule enough can be discovered in this way and left behind to maintain ovarian functioning in appropriate cases.

116. **Chorea Gravidarum.**—Kolde's patient was a young woman approaching term and the chorea was of an intensely severe type. It had commenced about two weeks before, after several syncopes. Morphin had no effect on the choreic movements and she had been unable to get any sleep for three nights. Kolde punctured the fetal membranes which was followed at once by labor pains and delivery in a few hours of a healthy child. During the second stage of labor the choreic movements were so violent that the woman had to be held by two attendants. She became quieter then at once and under 2 gm. of chloral fell asleep. The chorea subsided so rapidly after this that scarcely a trace was left by the fourth day.

117. **Differentiation of Maternal and Fetal Blood-Stains.**—Perazzi confirms Volhardt's statements in regard to the reliability of the Neuman method of distinguishing between blood-stains by the fat and lipoid content. (It was described in THE JOURNAL, July 4, 1914, p. 71.) Perazzi found the reaction as distinct with old blood-stains as with fresh blood, even when they had been exposed to the sun for weeks or to a heat of 150 C. He advises to weigh the flake of blood on the linen before applying the test. Also to test the woman's blood, in medicolegal cases, with both the old stain and the fresh blood.

Grèce Médicale, Athens

XVI, Nos. 7-12, pp. 13-24

118 Firearm Wounds of Nerves. A. Antipas.

Rivista Ospedaliera, Rome

June 15, IV, No. 11, pp. 505-560

119 *Cerebellar Ataxia in Children. (Le sindromi cerebellari nei bambini.) L. Concetti.

119. **Cerebellar Ataxia in Children.**—Concetti emphasizes the importance of publishing cases of this kind, and contributes 1 of the type due to defective or arrested development; 7 of the type due to acute infectious toxic processes, and 2 due to degeneracy or progressive involution. With either of the above the process may extend to involve other parts of the cerebrospinal system, with the resulting syndromes. This does not occur with tumors, hemorrhage, thrombosis and softening. In his case of the first type, in a boy of 3½, gradual improvement was evident under thyroid treatment, bromids, iodids, calcium chlorid, valerian, mercurial inunctions, hydrotherapy and massage. Occasional flaccid paralysis of the arm or leg was the first sign of trouble, soon after birth; the paralysis lasted for a few minutes or days and then subsided for a time, and finally came to alternate with epileptiform convulsions. Even at the best the gait was like that of a drunken man with a constant

tendency to fall, but improvement was realized under the measures mentioned above while the child was for several months in the clinic and it has continued to progress during the two years to date. He can now walk alone although still somewhat hesitatingly. Improvement was also realized under treatment in the 7 infectious cases: the ataxia followed typhoid, measles or pneumonia, or the child or the parents were alcoholic. No benefit was apparent in the degeneracy cases.

Brazil Medico, Rio de Janeiro

XXVIII, Nos. 23-24, pp. 221-240

120 *Clinical Study of Pyelonephritis. A. Pereira.

120. **Pyelonephritis.**—Pereira states that in fully 50 per cent. of his cases of acute gonorrhea he found the kidney pelvis also the seat of inflammation, revealed by the paraumbilical pain, elicited when the fingers are worked down toward the spine, just below the rectus muscle, on a line with the umbilicus, during expiration. Omission of this test may allow an unsuspected acute pyelitis to pass into a chronic phase. This is particularly likely in women with acute gonorrhea. Catheterization of the ureters may be required for a positive diagnosis, as he shows by a number of case reports. Cystoscopy usually differentiates the gonorrheal from tuberculous kidney trouble.

The prognosis of pyelonephritis usually depends on the length of time it has been installed, and the permeability of the ureters. He insists that local measures should not be applied to the urethra for acute gonorrhea when there is pyelitis, as the local measures are liable to increase by reflex action the congestion in the kidneys, thus aggravating the inflammation in the kidney pelvis. Bed rest should be imposed, keeping the patient's strength up on a milk-vegetable diet until the second glass of urine becomes limpid. This, he adds, may be counted on to ward off chronic pyelitis.

The chronic form once installed should be treated by dieting, hexamethylenamin or other disinfectant for the urine and tonics. In his experience, local applications of a disinfectant to the kidney pelvis cured in the recent cases and not in the others, while this could be accomplished equally well with the above medical, without local, measures. Relapses of an old pyelitis are common under any and all treatment and require repetition of the course. The pyelonephritis of pregnancy, he adds, is probably often merely the recrudescence of an old gonorrheal pyelitis which may have developed without attracting attention at the time and persisted latent until roused by the pregnancy.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

LVIII, No. 10, pp. 697-781

121 *Hearing Capacity of Schoolchildren. K. van der Wal.
122 Abuses of Workingmen's Compensation. (Misbruik en ongewenscht gebruik der ongevallenwet.) J. A. Korteweg.

No. 11, pp. 782-864

123 Rumination in Human Beings; Two Cases. (Over herkauwen bij den mensch en meer in het bijzonder bij den zuigeling.) J. C. Schippers.
124 *Simple Test for Diacetic Acid in the Urine and of the Degree of Acidosis in Diabetics. (Bepaling van den graad der zuurvergiftigung bij suikerziekte.) F. A. Steensma and J. Koopman.

121. **The Hearing of Amsterdam Schoolchildren.**—Van der Wal found normal hearing in 89.2 per cent. of the 7,433 children examined, and removal of impacted wax and of adenoids added materially to this percentage. After treatment of chronic otitis media a number of the children regained practically normal hearing. He found more or less deafness in 25.6 per cent. of the most backward children, and in 14.1 per cent. among the moderately backward, while the proportion was only 9.4 per cent. among the normally intelligent pupils. He comments on the unreliability of the teachers' estimates as to the hearing capacity of individual pupils.

124. **Estimation of Degree of Acidosis in Diabetes.**—Steensma and Koopman state that the simple bedside technic they describe will reveal even slight acidosis, and can be relied on as they show by tabulated comparative statistics from their own experience with various methods. Five c.c. of urine is mixed with 2 or 3 drops of glacial acetic acid and 1 c.c. of a 0.5 per cent. solution of starch. Then 6 drops of 1 per cent. tincture of iodin is added. Normal urine then turns blue. When no blue tint is apparent, not even for a minute, the presence of diacetic acid is revealed. By graduating the tint in a set of test-tubes it is possible to estimate the degree of acidosis. They regard this technic as the most convenient for the purpose known to date, and state that it is not affected by the presence in the urine of albumin, sugar, acetone or urobilin. [It is a slight modification of Ondrejovich's technic (published in *Deu. med. Wchnft.*, 1912, xxxviii, 1413). A recent article on this latter technic by F. Rietti extols it as exceptionally convenient and reliable with the only drawback that indican gives a positive reaction as well as diacetic acid. (*Rivista critica di Clin. Med.*, 1914, xv, 417).]

Hospitalstidende, Copenhagen

July 8, LXII, No. 27, pp. 843-864

125 *Dangers from Radium Treatment of Cancer. (Er radiumbehandling af operable Kræftsvulster tilladelig?) T. Rovsing.

125. **Radium Promotes Instead of Checking Cancer.**—This is the conclusion which has been forced on Rovsing by his tragic experiences in a number of cases in which small, hitherto indolent and benign superficial growths were fanned into rapid malignant growth apparently by the exposure to radium. He states that he has been unable to find in the literature any authentic case of an actual cure of a cancer under radium, but the chorus of encouraging reports overcame his first misgivings and he began to apply radium himself in 1912. His extremely unfavorable experiences made him fear that his technic was at fault, so he took a trip to Heidelberg to study the technic in vogue there and found that he had been applying it strictly according to rule in every respect, and yet in many instances the exposure was followed by the transformation of an indolent growth into a rapidly gnawing cancer, becoming absolutely inoperable in the course of a few days. He gives the details of ten such cases. They were selected for radium treatment on account of the apparently peculiarly favorable conditions for this. In one case a small tumor in the cheek—the recurrence of a carcinoma which had been excised less than three months before—could easily have been removed, but as it seemed to invite radium treatment this was applied for twenty hours. The tumor became in a few days absolutely inoperable and all were convinced that this was the direct result of the radium exposure, especially as case after case showed this same course.

The growth became intensely painful as a rule after the radium exposure. This was particularly evident in the case of a man of 29 who had been given radium treatment at Omaha for a suspicious lump on his lower lip noticed for two years. After the radium exposure the lump began to grow rapidly and when it was then excised, recurrence rapidly followed. This occurred again after a second operation. The small ulceration in the cicatrix and two slightly enlarged glands under the jaw were then treated with radium. The glands had been thus enlarged for two years without change but after the last radium exposure the whole region at once became transformed into a rapidly fatal cancer. Twice in the history of this case radium had been applied when the lesion was small and readily operable, and each time the malignant disease seemed to have been whipped up by the radium which the patient had insisted on as he had heard so much of the "magic" efficacy of radium treatment of cancer.

Ugeskrift for Læger, Copenhagen

LXXVI, Nos. 26-27, pp. 1143-1230

126 Diathermia. (Orienterende bemærkninger om diatermi.) J. B. Eliassen.
127 Simple Technic for Determination of Sugar Content of Urine. E. Winslow.
128 Recovery after Removal of Intraspinal Tumor. J. Collin and K. H. Krabbe.